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Editorial Foreword

We are pleased to announce that the second issue of UKH Journal of Social Sciences (UKHJSS) is now out in print. As the Editorial Board of the journal, we are honoured to be part of this achievement and have devoted a great deal of time and effort to ensuring that the journal follow the highest standards and international best practices. Rather than simply add its name to the list of periodicals out there, UKHJSS will make an impact within the scientific community both locally and internationally. We aspire to become a globally recognised academic journal that makes valuable contributions to science and scholarship.

The UKH Journal of Social Sciences is a semi-annual journal published by the University of Kurdistan Hewlêr, Erbil, Kurdistan Region, Iraq. Its e-ISSN number is 2520-7806, and its Crossref DOI is 10.25079/issn.2520-7806. UKHJSS publishes a variety of research and review articles, letters, and original studies in many areas of social sciences. It is a peer-reviewed open access journal with a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License (CC BY-NC-ND 4.0). As such, the journal offers immediate, worldwide barrier-free access to all its published manuscripts without requiring a subscription or article processing charge (APC). By so doing, we intend to make available our authors’ contributions to science while adhering to the highest standards of rigorous scrutiny and academic research.

UKHJSS is intended to be a stimulating platform for all serious researchers and scholars in Kurdistan and abroad. We invite them to contribute to our journal by submitting their innovations, insights, and research findings. While original research is particularly cherished, we also value reviews and the scientifically reasoned opinions of experts, and scholars in a wide range of academic disciplines. We apply a uniform approach to all contributions: Research that is scientifically valid and technically sound deserves to be published and made accessible to the research and academic community. By publishing with us, your research will get the coverage and attention it deserves. As we follow an open access and continuous online publication practice, your work will be published swiftly and easily accessed by anyone, anywhere, and at any time. Moreover, Article Level Metrics allows you to continuously check the progress of your submitted work.

Finally, the Editorial Board of the UKH Journal of Social Sciences would like to extend its appreciation and gratitude to the 14 reviewers from different parts of the world who supported the journal by anonymously reviewing and assessing the submitted papers for the journal’s first issue. We also greatly value the distinguished researchers and authors who showed their interest by publishing the results of their hard work in our journal.

UKHJSS Executive Publisher
Dr. Mohammed Mochtar

UKHJSS Editorial Board:
Dr. Sherwan Kafoor, Prof. Almas Heshmati, Dr. Nabaz Khayya, Dr. Adam Mayer, Dr. Zana Ibrahim and Mr. Martin Hilmi.
The Role of Natural Resources in Kurdistan Regional Government’s Economic Development

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ABSTRACT

The oil and gas industry of the Kurdistan Region of Iraq developed rapidly between 2007 and 2013, described as the “good days” of the Kurdistan Region’s economy. However, the Kurdistan Regional Government has faced a severe economic crisis since 2014, with falling oil prices and disruption to oil production. As a newly oil-exporting region, the flow of revenues derived from oil exports plays an important role in the region’s economic development. This paper addresses three questions: What are the challenges of the resource curse facing oil-exporting countries; how has oil and gas industry development contributed to the improvement of other economic sectors, particularly the agricultural sector in the Kurdistan Region; and what policy recommendations can be made to counter the challenges of the resource curse? We argue that the Kurdistan Region’s economy is over-reliant on revenues from the oil industry and that excess revenues have not been sufficiently and effectively invested in the other crucial economic sectors, such as agriculture, to diversify sources of income.

Keywords: Agriculture Sector, Economic Diversification, Kurdistan Region of Iraq, Oil and Gas Sector, Resource Curse

1. INTRODUCTION

A negative correlation between an abundance of natural resources1 and economic growth is described in numerous studies (Gylfason, 2000; Sachs and Warner, 2001) as a “resource curse.” Resource-abundant countries such as Nigeria, Libya, Iraq, Ghana, Bolivia, and Venezuela are among those that, for various reasons, have failed to use their wealth to develop their economies. In contrast, although the Asian countries of South Korea, Taiwan, Malaysia, Singapore, and Hong Kong possess few natural resources other than skilled and disciplined human resources, yet they have been able to achieve economic growth and industrialize. A wide range of challenges facing oil- and gas-exporting countries has contributed to the emerging “curse,” including Dutch disease, oil price volatility, lack of economic diversification, low-quality institutions, and widespread corruption.

The oil sector of the Kurdistan Region of Iraq (hereafter Kurdistan Region) developed rapidly between 2007 and 2013 but has suffered from low-quality institutions. A poor governance model for oil wealth played a major role in ineffective management of the influx of oil revenues during the oil boom. Rent seeking, corruption, and oil revenue wastage on consumerism led to inadequate and inefficient investment in non-oil sectors, while lack of economic diversification led to the Kurdistan Region’s heavy economic reliance on oil revenues.

The contraction of the Kurdistan Region’s agricultural sector may have contributed to diverse factors in the
region over recent decades. This paper focuses on the agricultural situation between 2003 and 2013 when the Kurdistan Regional Government (KRG) was formally and constitutionally established. The paper reveals evidence of the curse/blessing of oil and gas and sheds light on reasons for the decline of the agricultural sector. It also discusses which factors are attributable to oil and gas. The objective is to explain the possible relationship between oil revenue management, neglect of agriculture, and general economic planning and development. An attempt is also made to establish the extent of the role played by the natural resources sector (oil and gas) in the decline of the agricultural sector in Kurdistan Region, despite its short period of extraction.

This paper discusses three core questions: What are the challenges of the resource curse facing oil-exporting countries; how has oil and gas industry development contributed to the improvement of other economic sectors, particularly the agricultural sector in the Kurdistan Region; and what policy recommendations can be made to counter the challenges of the resource curse? Section 2 explains the resource curse and the challenges facing oil- and gas-exporting countries from different angles. Section 3 highlights recent trends in the oil and gas industry in the Kurdistan Region. Section 4 provides an insight into the evolution of the region’s agricultural sector, investigating enhanced efficiency and productivity, a vision for revitalizing agriculture, and an evaluation of current capacity. Section 5 discusses the role of the oil and gas sector in the development of other economic sectors, particularly agriculture. Section 6 makes recommendations for promoting the benefits of the Kurdistan Region’s oil and gas sector and how necessary resources might be allocated toward rehabilitating and developing the region’s agricultural sector, to avoid the negative effects of the oil curse on agriculture and other sectors of the economy and on society in general.

### 2.2. The Resource Curse

The “resource curse” is linked to the failure of resource-abundant countries to take advantage of the influx of resource revenues for economic development. Sachs and Warner (2001) and Ross (2003) explain that resource-rich countries tend to have lower economic growth rates than resource-poor countries. According to Ross, Indonesia managed to improve its economic growth rate, resulting in a much higher increase in per capita income than in Nigeria. In other words, some resource-abundant countries have managed to handle the challenges of economic development better than others.

#### 2.1. Challenges of the Resource Curse

**2.1.1. Dutch disease**

“Dutch disease” is a phenomenon linked to the macroeconomic challenges of the resource curse and to oil price volatility in the international market, with strong implications for stability in development planning and public finance. This phenomenon occurs when oil prices rise in the world market, causing a large appreciation in the value of the national currency, which may increase imports.

Oil booms also stimulate public sector spending, resulting in higher prices for non-tradable goods and services such as housing. The workforce is attracted by increased wages in the oil industry and the non-tradable goods sector and shifts away from the manufacturing sector. Therefore, the manufacturing and agricultural sectors become uncompetitive in the face of cheaper imports. This results in a decline in productivity in tradable goods and thus deindustrialization in resource-rich countries (Corden and Neary, 1982), which is known as “Dutch disease.” Sachs and Warner (2001) also explain that a decline in the manufacturing sector may have negative long-term impacts on economic growth.

**2.1.2. Volatility in oil prices**

As shown in Figure 1, oil prices have been very unstable in recent years as a result of an increase in financial activities (Lombardi and Van Robays, 2011; Labban, 2010). Underlying factors such as low demand, abundant supply, and a strong US dollar caused an unexpected fall in oil prices that began in mid-2014 (Behar and Ritz, 2016; Paffes et al., 2015). However, oil prices rose to US$60 per barrel in early 2018 as a result of oil supply limits. In addition to continuing production cuts supported by members of OPEC and Russia, disruption of supplies of Kurdish oil to the Mediterranean in the wake of the Iraqi military forces’ takeover of the Kirkuk oilfields was...
another major contributory factor to the oil price increase (Varghese and Samanta, 2018).

Another economic challenge faced by oil-exporting countries is volatility in international oil market prices, which has a severe impact on growth in per capita output, particularly in countries relying heavily on oil revenues. This occurs because governments increase public spending during an oil boom, but after the boom, the windfall comes to an end and the resulting budget deficit slows economic growth. However, there has been some international success in oil revenue management, such as Norway’s management of volatility in oil prices through the implementation of sound fiscal measures, such as fund building and investment in international financial markets to diversify risks (Coutinho, 2011; Van der Ploeg and Poelhekke, 2008; Auty, 2001).

2.1.3. Over-reliance on oil revenues
Most oil-exporting countries are exposed to low economic growth in the long term due to their high reliance on oil exports and lack of economic diversification. Oil revenues are volatile and exhaustible; therefore, other economically productive sectors must be developed to promote sustainable economic growth. However, most oil-exporting countries are heavily economically reliant on oil revenues and are thus highly vulnerable to oil price volatility and disruptions to production capacity. Economic diversification is a challenge for many main oil exporters and requires an appropriate policy package, including monetary, financial, educational, and institutional policies (Stevens et al., 2015; Brunnerschweiler and Bulte, 2008).

2.1.4. Institutional capacity
Quality of national institutions is among other possible reasons for the success or failure of resource-rich countries to achieve economic growth is the quality of their national institutions. Countries with abundant resources and good-quality institutions are likely to achieve better economic performance than those with weak institutions (Boschini et al., 2007; Mehlum et al., 2006). Studies also show that poor institutional quality leads to declining productivity. According to Arezki and Van der Ploeg (2011), institutions may have a direct impact on per capita income through rent-seeking behavior. Several studies note that “rent-seeking” effects may occur as a result of the poor quality of institutions. Rent seeking takes place when multiple power groups have access to resource rent and attempt to increase their share of resources. This results in a decline in the efficiency and productivity of economic activities, which may lead to low levels of social welfare (Lambsdorff, 2002; Torvik, 2002).

2.1.5. Transparency and accountability
Lack of accurate information concerning the government’s management of natural resources may result in the public believing that the government is not using natural resources wisely, is abusing power and that officials are corrupt. Many studies observe that, in resource-rich countries, transparency plays an important role in preventing “corruption,” which is considered to be a different form of rent seeking. Kronernberg (2004) argues that “corruption always goes hand in hand with rents because pressure groups may block political reforms in order to protect their rents.” This leads to a significant deterioration in the economy, reflected in reduced productivity growth. Kolstad and Wiig (2009) suggest that corruption may be mitigated by transparency in resource-rich countries. Transparency of information may protect social coherence and avoid escalations of social conflict.

Accountability in the petroleum sector is linked to provide information to the public to ensure that it pursues established performance targets relating to economic development for the nation’s welfare. The natural resource sector involves three interest groups. The first comprises oil companies that extract the resources and benefit from oil revenues. The second is the government, which regulates the oil industry and receives and spends oil incomes on public development projects. The third group is the general public, which benefits from national resources. Lack of accountability causes social conflict as a result of ambiguity in how resource revenues are spent. This is the case in a number of resource-rich countries, including the most extractive African countries of Nigeria, Sudan, Liberia, and Sierra Leone, which suffer from corruption and mismanagement of resources. This leads to a slowdown in economic growth, increased inequalities, and poverty (Herringshaw, 2004).

Some grassroots movements, such as the Extractive Industries Transparency Initiative (EITI) and “Publish What You Pay,” are attempting to compel resource-rich countries to report on their oil and gas revenues and their spending, to force governments to concentrate on welfare activities.

3. RECENT TRENDS IN THE OIL AND GAS INDUSTRY IN THE KURDISTAN REGION
The Kurdistan Region is a resource-abundant region in northern Iraq. It has proven reserves of 45 billion barrels of oil and 3–4 trillion cubic meters of gas (Oil and Gas Year, 2014). Compared with the rest of Iraq, peace and the relatively high security in
the Kurdistan Region have enabled the regional government to develop the oil sector and lease much of its land to international and local exploration companies.

Contracts signed between the KRG and foreign and local companies are based on a product-sharing contract (PSC) model (Ministry of Natural Resources, 2016). The KRG had issued 58 PSCs by the end of 2014 (Oil and Gas Year, 2014). Under the PSC model, KRG, as the owner of petroleum, engages international oil companies as contractors to provide technical and financial services for exploration and development operations. Under such contracts, international companies are often committed to accomplishing a number of projects so as to enhance capacity building in host countries. International oil companies may spend millions and in some projects even billions of dollars to develop the industry's infrastructure. Extractive industries are also labor-intensive, and if local labor is skilled, may play a major role in reducing local unemployment. In addition, international oil companies as partners may develop skilled domestic human resources in the petroleum field. This is crucial for the success of host oil-producing countries in establishing national oil companies (NOC) to gradually undertake the principal responsibility of managing all external oil- and gas-related relations with international corporations.

The Kurdistan region’s petroleum law, approved by the Kurdistan Region’s parliament in 2007, plays a major role in attracting outside investors. Increased direct foreign investment in the oil and gas sector is a driving factor in the rapid growth of the region’s oil and gas industry (Oil and Gas Year, 2014).

3.1. Oil Production
As illustrated in Figure 2, the Kurdistan Region’s oil production has grown since 2007 (Ministry of Natural Resources, 2017). Five key oil fields in the Kurdistan Region are capable of significant production: Tawke (operated by DNO), Taq Taq (operated by TTOPCO) and Khurmala, Bai Hassan, and Avana (operated by the Kar Group). Between 2003 and September 2017, oil production grew steadily and sustainably. In December 2015, the monthly average crude oil production capacity of fields operating in KRG areas was more than 500,000 barrels per day. However, on October 16, 2017, the Kurdistan region’s oil production halved when the Iraqi military recaptured Kirkuk’s oil fields, which had been under the control of the KRG since 2014.

3.2. Oil Exports
Construction of the Kurdish pipeline between Kirkuk and the Turkish port of Ceyhan boosted the Kurdistan Region’s oil industry, enabling it to convey its oil to the markets (Burr, 2014; Barbosa, 2014). The federal government directly controlled exports of Kurdish oil through SOMO Company between 2008 and 2012 [Figure 3].

After the government cuts the Kurdistan Region’s budget, the latter signed a new oil agreement with Iraq’s federal government in 2014 to offset the KRG’s entitlement to a 17% share of Iraq’s total budget (Coles et al., 2015). According to the new oil deal, the KRG would export 550,000 barrels of oil per day through the Kurdish oil pipeline to global oil markets. This agreement included exports of 300,000 barrels per day from Kirkuk oil fields, which were added to the producing fields in the Kurdistan region after Kurdish forces regained the city of Kirkuk from ISIS (Hawramy and Beaumont, 2014). However, this oil deal was rescinded by the federal government after the military retook Kirkuk’s oil fields in October 2017.

4. THE AGRICULTURAL SECTOR IN THE KURDISTAN REGION

4.1. Evolution of the Agricultural Sector
Societies evolve, and during this process, are impacted on by developments in technology, governance, organization, knowledge, etc. Agricultural societies’ evolution into industry-, service-, and pre-knowledge-based societies in the Kurdistan Region can be traced through five distinct periods: Resistance before 1987, destruction between 1988 and 1990, self-rule between 1991 and 1995, the oil-for-food program between 1996 and 2002, and a federal governance structure between 2003 and 2013.

During the resistance period, the Kurdistan region was a purely agricultural society. In terms of food supply, the region was not only self-sufficient but supplied all excess production to meet regional demand in the rest of Iraq, which had chosen an industrialization path financed by petrodollars. Thus, agriculture was the main source of income for the rural population of the Kurdistan Region, while in urban areas, the source of livelihood was employment in public services such as education, health, water, electricity, and banking, as well as governance, construction and planning, agricultural management, and private services.

During the destruction period, the central government was determined to subdue the resistance movement by destroying over 3,000 villages, farms, pasture, and sources of water. This systematic destruction of the rural economy was the
main reason for the decline in agriculture in the Kurdistan Region. In parallel, the Anfal campaign targeted killing of the productive male population who had the potential to resist, so members of this segment of the population disappeared. There was also forced resettlement of a large proportion of the population outside the region. This process culminated in the use of chemical bombs to exterminate some settlements, which led to the establishment of a fly-free zone monitored by the US and UK air forces to protect the civilian population. The main objective was not only to protect Kurds but also to weaken the Baghdad regime’s efforts to develop weapons of mass destruction.

The creation of a fly-free zone and withdrawal of Iraqi security and armed forces from the Kurdistan Region, combined with the Iraqi blockage of the region, resulted in the establishment of a self-rule semi-government in the region. However, despite the great opportunity offered by self-governance, the extent of infrastructural destruction, limitations on access to resources imposed by hostile neighbors, inefficiency, disorganization, internal conflict, and low capability were handicaps to efforts to rehabilitate and reconstruct the rural areas, which remain an unresolved issue.

The oil-for-food program was introduced to monitor the use of oil and gas revenues for living expenses, education, health, and general development purposes. A limited share of revenues in proportion to the region’s population share (estimated at 17%) was allocated to living expenses and development activities in the Kurdistan Region. The devastated rural infrastructure resulted in substitutions of local production with imported goods and with disastrous outcomes. The inability of the regional government to monitor the allocation of resources to productive activities and to regulate imported food items had a strong negative impact on the weakened agricultural sector, although it should be noted that the oil-for-food programme was a survival tool for Kurds, who lacked basic production resources. The United Nations Food and Agriculture
Organization effectively contributed to the development of the agricultural sector through supplies of farming equipment, training for farmers, and extension services. However, given the hard living conditions and shortage of basic food, some observers believe that the oil-for-food program became an extension and continuation of the destructive programme initiated by the central government.

As a result of the new Iraqi constitution initiated and rectified during the American transitional administration following the 2003 invasion of Iraq, the Kurdistan region rejoined Federal Iraq administratively. It then gained its own regional government comprising a president, prime minister, parliament, ministerial cabinet, and other public institutions. The federal governance era was characterized by a business-driven development strategy which led to the rapid development of profitable private sector business areas, while local production and national interests were neglected. Increased bureaucracy, inefficiency, consumerism, speculative investment in infrastructure unlinked with productive resources which were regionally unbalanced, and a biased urban–rural development strategy led to further deterioration of the fragile and shrinking agricultural sector. All these changes contributed to marginalization of the agricultural sector in relation to the rapidly expanding and dominant services sector. This marginalization was manifested in the agricultural sector’s lower contribution to the region’s economy in the form of employment opportunities and share of GDP and in food safety and security issues. Lack of a long-term perspective or emphasis on enhanced self-sufficiency and the importance of agriculture weakened the sector to a level where the Kurds’ existence and their desire for self-rule were endangered.

The next sections report briefly on the current state of the agricultural sector, education, inputs and outputs in general, and their links to productivity in the Kurdistan Region’s agricultural sector in particular. The aim is to shed light on the possible oil curse and also on educational limitations and how to enhance the region’s agricultural productivity and develop efficient use of its water resources. Research, training, capacity building, extension services, and collaborative activities are considered among important ways to achieve national interest-driven objectives. These are expected to be financed by oil and gas revenues, suggesting that oil may serve as a blessing. The short-term, business-driven development strategy employed by the regional government, together with the absence of basic regulations, has led to a decline in agriculture and enhancement of the profitable and expanding import-driven services sector.

### 4.2. Enhancing Efficiency and Productivity in the Agricultural Sector

This section elaborates on issues relating to the efficiency and productivity of agricultural production and the use of water resources. The concept of productivity employed here is general, referring to relationships between inputs and outputs in agriculture. These relationships may be defined in terms of the ratio of outputs to inputs, where a higher ratio indicates a higher yield and more productive use of resources.

The growth rate in productivity, such as growth in GDP, is often subjected to evaluation and comparison with the performance of other sectors and economies. On the other hand, efficiency is a relative measure, where the best practice or most productive technology is used as benchmarks. In addition to efficiency and productivity in the agricultural sector, attention is also paid to issues of efficiency in the use of water resources. Both efficiency and productivity and the growth rate can be measured at different levels of aggregation, such as at the firm, farm, sub-sector, sector, region, and country levels.

Measuring agricultural productivity and efficiency is necessary to determine the productive and efficient use of resources, such as labor, land, animal units, or quantities of seeds, fertilizers, pesticides, and water. Productivity is an index that can be measured parametrically or non-parametrically. Single-factor productivity measures the yield per hectare of land or per unit of labor and is defined as land and labor productivity, respectively. Multiple or total factor productivity (TFP) is the most common measure, which is measured as the weighted average productivity of inputs, and accounts for economies of scale. Data envelopment analysis (DEA) and Divisia and Malmquist productivity indices are non-parametric methods commonly used in studies of technical and productivity changes. Depending on the objective of the producer, such as cost minimization or output maximization, the parametric approach uses the measures based on production, cost, or profit functions. The growth rate of productivity (TFP growth) is commonly used in performance analysis and to compare the performance of production units at different levels, as in regional, sectoral, or international growth analyses.

Efficiency of production in decision-making units is very common in management. Here, managers are interested in their performance in producing goods and services. Knowledge of efficiency helps managers to allocate resources to the most efficient and productive areas. The efficiency of different units is compared with that of the unit with the best technology. Efficiency can also be measured in different ways using non-parametric and parametric approaches.
approaches. DEA based purely on inputs and outputs is the most common non-parametric method, while stochastic frontier cost and production frontiers are among the most common parametric approaches. This methodology, in addition to the input–output relationship, accounts for or allows control of managerial, production, cost, market, and policy environments and characteristics. Production and cost efficiencies are consistent with profit maximization under conditions of output maximization and cost minimization, respectively.

Like land, labor, energy, seeds, and fertilizers, water is a scarce production resource, so its efficient use and high productivity are desirable. The methods outlined previously can also be used to analyze the performance of users of water resources. Again, the aim is to maximize returns of given used water resources or to minimize the use of water to produce a given quantity of output. Water is used by households, in agriculture (including arable farming, animal husbandry, fisheries, horticulture, and forestry), and by industries and public services. These are the four main sectors of water resource use in all societies. In general, integrated management of water resources accounts for allocations of water and their externality on other users. Here, the focus is on all users, but primarily on agriculture, and public services such as recreation.

The level and growth rates of productivity and efficiency are affected to different extents by a number of factors, individually or jointly. Human capital is a key source of increased efficiency, productivity, and quality in production. There are two-way causal relationships between human capital investment and productivity: The higher the human capital, the higher the productivity, which in turn induces greater investment in research, education, and training. Under such conditions, there is strong evidence that the two factors are interdependent and mutually strengthening.

Here, capacity building refers to in-house or external capacity building programs for employees engaged in management, research, training, and extension services. In short, the training of trainees is motivated by their lack of or outdated education and skills. Regardless of the level of education, updating skills are essential to remain close to or catching up with frontier knowledge and technology. In summary, education, training, research, and extension services are crucial for achieving national goals in the agricultural sector. Good quality and up-to-date training and extension services are a pre-requisite for making the products and services demanded by rapidly changing and competitive markets.

Research and research capacity play a significant role in providing a clear and concise picture of the actual situation and in identifying needs and measures to achieve stated agricultural development goals. Research may be carried out at different levels and in different locations. It is important to formulate strategies and establish clear decision-making in the sector, as this will improve the ability to design and implement extension services, and shed light on, and thereby strengthen their impact and feedback effects. It will also impact on the allocation of oil revenue-based resources to high-priority and productive areas. In summary, these measures will increase the performance of invested resources to enhance the blessings of oil and gas resources.

4.3. The Vision of Agricultural Revitalization
As previously mentioned, in the 1960s, ‘70s, and ‘80s, the Kurdistan Region was an agricultural society that produced traditional products. It supplied food for local consumption, and the excess was exported to the rest of Iraq and neighboring countries. The main traditional crops were wheat, barley, chickpeas, apples, peaches, grapes, and sumac (MAWR, 2012). A roadmap produced by the Ministry of Agriculture and Water Resources (MAWR, 2012) indicates that the Kurdistan Region is rich in water resources. Five rivers (Khapoor, Great Zab, Little Zab, Awaspee, and Seerwan) run through the region, and it is also rich in springs, groundwater, and rainwater. Of the total amount of water flow, around 60% is sourced locally, while the rest is sourced from outside the Kurdistan Region. Currently, rainwater and water in general are not used effectively within the region for the development of agriculture or recreational purposes. However, there is potential and a desire to use water resources to increase the proportion of irrigated land (see Heshmati, 2009 for a comprehensive analysis of integrated water resource management in the Kurdistan Region).

The MAWR (2012) roadmap indicates that the agricultural sector’s infrastructure was destroyed as a consequence of years of unrest, conflict, and the central government’s policy of depopulating the region. Early attempts to reconstruct the sector were made locally between 1991 and 1996, mainly by farmers. However, this limited progress may have been eliminated by the UN’s Oil-for-Food Program. Due to a lack of policy by the regional government, this program negatively impacted the agricultural sector's performance and development.
impacted on the agricultural sector, resulting in the region moving from being self-sufficient to becoming an importer of food items. Global climate change in recent years has also impacted negatively on the region’s water, with increasing variations in water flows and yields.

In recent years, decision-makers have been in agreement that the sector needs to be reformed and have also emphasized the necessity for changes in management, training, research, extension activities, legislation, guidelines, and general working practices. The intended changes imply close cooperation between politicians, farmers, universities, and overall civil society. Thus, the rehabilitation and development of agricultural and water resource sectors require the specification of priorities to achieve food security, a well-formulated roadmap with clear objectives and an applicable timeframe, and effective management to ensure a sustainable food supply, taking account of the population’s energy intake and dietary requirements, as well as water security and quality.

The MAWR defines its objective for these sectors as “to achieve food security, continuous improvement, and provide excellent service to the citizens,” for which it “must pledge to follow up the management system to improve quality and standards.” In the case of water resources, the aim is to “Secure necessary water for drinking, farming, manufacturing, and tourism; and achieve water security in the Kurdistan Region and preserve the water resources, especially the groundwater.” A SWOT analysis\(^4\) of the internal and the external environments was used to identify the strengths, weaknesses, opportunities, and threats. The MAWR’s priorities and objectives are divided into two categories: Immediate and strategic.

Immediate priorities are both internal and external. Internal priorities focus on solving management problems and organization structures; increasing the provision of services and improving standards; focusing on the public interest; improving quality control and follow-up; improving access to information on the ministry’s website; establishing a program to raise awareness among farmers and consumers on how to use water in the best way and the harmful effects of using dangerous chemical inputs; assessing staff performance and activities at the ministry level; transparency; and a simplified hierarchy and reduced bureaucracy. The external priorities focus on increasing support linked to productivity, the quantity and quality of production, and the use of modern production and consumption technologies.

The strategic priorities are to achieve food and water security and self-sufficiency in food supply. These are expected to be achieved through preservation and promotion of agricultural products with marketing support and by the efficient accomplishment of the transfer cycle of agricultural products from farm to consumer. The roadmap provided information on actual 2011 outputs and predicted 2013 levels. Each product is further classified as the achievement of full (100%), medium (more than 50%), and low (<50%) levels of self-sufficiency in supplies of food items. This classification is carried out for crops, poultry and eggs, red meat and milk, vegetable products, fruits, fish, forests and meadows, honey, water resources, dams, and irrigation projects.

Among the legislative measures taken or in progress to upgrade the current out-of-date Iraqi laws are revision of the Agriculture Act. The out-of-date rules and regulations include: laws relating to the allocation of land within municipality borders to reduce wastage of arable land; application of scientific farming rules and formulation of a specific law for the region’s farmers; the introduction of legislation to protect forest, natural meadows, livestock and wildlife; legislation to control imports of livestock and poultry; oversight of the process of livestock slaughter; separation of food security regulation from the plant and livestock sector policies; and legislation on raising livestock and poultry. The region has no legislation to protect and sustain its water resources, but a number of proposals are being prepared to cover the areas of water protection and management, dam protection and security, water bank protection, and groundwater protection and usage.

Another priority is to rebuild the destroyed agricultural and water resource infrastructure. Improving living conditions in the countryside and rebuilding villages play a key role in creating a suitable environment for farmers to return to their land. Promoting a general interest in farming, supporting producer associations, and coordinating the efforts of different ministries with interests in rural development are among the other priorities. Reforming and improving the quantity and quality of food commodities and water resources by adopting processes using special and new technologies will enhance the profitability and interest in the farming business.

To obtain sufficient energy from a decent diet, citizens should be provided with the necessary food in accordance with the stated business plan. A level of self-sufficiency can be achieved by supporting the private sector in finding markets for their products; encouraging the food industry and

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\(^4\) For applications of the SWOT methodology, see Markovska et al. (2009) and Terrados et al. (2007) in the contexts of the energy sector and regional energy planning respectively.
improving domestic products; establishing and supporting specialist groups of farmers; protecting domestic production against imports; promoting vital and basic products; and encouraging organic and greenhouse farming. The roadmap shows the ministry’s capability of reaching self-sufficiency in vital products.

To achieve these objectives, the main policies adopted along with the business plans pertain to the agricultural sector and water resources. Agricultural policies relate to protecting and improving domestic products by restricting imports that are detrimental to the achievement of self-sufficiency; providing and supporting the quality and quantity of a variety of agricultural products and developing the agricultural sector; encouraging the establishment of cooperative associations; making use of modern technologies in agriculture; increasing production in each area; marketing farming products; rebuilding infrastructure; supporting means of production; creating economic opportunities in agriculture; enhancing the capabilities of the farming workforce by providing modern training; strengthening relationships between the ministry’s research centers and agricultural faculties; and facing challenges relating to forests and alterations to the nature of the land.

The policies regarding water resources are structured to achieve certain strategic objectives. This include preparing legislation for the Kurdistan Region’s water resources. The legislation aims primarily to storage, management of using water resources. Other aims include: providing water for the agricultural sector and its sustainable use; encouraging local and foreign investment in the water sector; protecting water resources and implementing a system of supplementary irrigation; cleaning river water ways; raising awareness of the use of water and water recycling for irrigation; improving staff capabilities and facilitating cooperation with universities; improved readiness to meet natural disasters; focus on benefiting from surface water and preserving groundwater; providing irrigation machinery and loans for equipment purchases; establishing a council for water at the governmental level and establishing a supreme Board of Water; strengthening the role of the region in planning and decision making regarding local water resources; systematic collection of data on water resources; and working to improve standards and quality so as to benefit from the region’s water resources.

These measures suggest that reforming agriculture and water resources in the Kurdistan Region is considered a major task. The success of the reforms will require a clear vision, a specific roadmap, capable organization, and resources. The roadmap indicates that the most important issue in this context is how to conduct the work within the ministry, which is a complex challenge.

4.4. Evaluation of Current Capacity Conditions

The agricultural sector is broadly divided into crops, animal husbandry, poultry, aquaculture, horticulture, forestry, greenhouses, and the food processing industry, while water resources are divided into groundwater, surface water, rivers, and dams. The ministry’s documents make little mention of the food processing industry and its operations. In terms of users, integrated management of water resources would ideally be employed to cover water usage in agriculture, industry, households, and public services. Each of these areas has its own specific functions, organization and structure, management, education, research, and training needs, as well as extension services. Some inputs and outputs are general and defined by international standards, while others are area and location specific. Where data are available, performance based on standards can be easily calculated, while other measures must be suitably defined.

Capacity building is defined as the planned development of or increases in knowledge, output, management, skills, and other capabilities of an organization through acquisition, incentives, technology, and training. In the context of the agricultural sector, capacity building involves targeting employees in the ministry and in associated offices within the region. It aims to enhance the skills of employees in understanding, planning, implementing, and assessing tasks allocated to them. The current structure of capacity building activities is organized around planning, research, training, and extension activities.

Capacity-building activities are organized by the general directorate of agricultural research and extension, which is subdivided into the directorates of planning, research and training, and extension. The directorate of planning is centrally located at the ministry in Erbil and is responsible for planning activities on an annual basis. However, the detailed nature of its activities is unknown. The directorate is expected to have a good overview of actual needs of the sector in order to determine the required capacity and its linkage to the other two directorates and their sub-directorates to implement planned development activities.

Capacity training should be allocated optimally to the different subsectors of agriculture and water resources. In the documents produced annually by MAWR, such distinctions are made by providing information about training courses
targeting specific subsectors. This will help distribute enhanced capacity to identify and eliminate bottlenecks and ensure a smooth flow between the functions and performance of different, interdependent stages.

5. OIL AND GAS SECTOR DEVELOPMENT AND CONTRIBUTIONS

5.1. General Sectoral Contributions

Despite active opposition by the federal government in the form of threats against the KRG and oil companies, improvements in the Kurdistan Region’s oil and gas sector between 2003 and 2016 were impressive. This led to the development of an oil and gas industry in the region, with potential to supply needed energy for the region’s consumption as well as for exports. However, there is a fear that the Kurdistan Region’s economy may become heavily dependent on the energy sector and may not be sufficiently diversified.

As previously mentioned, the failure of the Kurdistan Region’s oil revenue management model during the oil boom (2007–2013) hampered economic development. Therefore, the Kurdistan Region has faced a number of severe challenges in the wake of falling oil prices in 2014 and disruption in 2016 in its crude oil supplies. The KRG failed to allocate oil revenues effectively to other economic sectors such as agriculture to avoid Dutch disease. However, the absence of reliable data regarding GDP and public investment expenditure makes meaningful analysis difficult. The Kurdistan Regional Statistics Office (KRSO) has only provided data for 2011 GDP and the distribution of annual growth rates of value added by non-oil sectors in the Kurdistan Region’s economy.

According to the KRSO, growth rates in different non-tradable sectors varied in the Kurdistan Region in 2011 [Figure 4]. Non-tradable sectors, including public administration and other services, formed 50% of GDP in 2011, while the GDP shares of tradable sectors were 9.4% for mining and manufacturing and 17.5% for agriculture. Banking and insurance sector incomes were negligible, at just 1.3% of GDP. Heshmati (2012) shows that the low GDP growth in agriculture arose from disproportionately increased public and private spending to pay for increased imports of goods and services.

Furthermore, reports published by the Ministry of Planning regarding total capital investment allocations in the 2013 and 2015 budgets show that the highest allocations were given to the tourism, housing, and electricity sectors. The high proportion of public investment in service sectors such as housing and high levels of subsidization in the electricity and housing sectors pose challenges to government spending in productive sectors such as agriculture in the Kurdistan Region. KRG’s expenditure on infrastructural investment is a critical component of GDP and may play a major role in increasing output across various sectors; however, oil revenues have exposed the Kurdistan Region’s economy to the effects of Dutch disease by crowding out tradable sectors.

As explained in the Dutch disease model, the petroleum sector may be linked to expenditure or consumption effects and resource movement effects. Consumption effects refer to the direct impact of oil incomes on the economy. Oil incomes may result in increased public expenditure on imported goods and services, as well as on technology. As a result, domestic products may be unable to compete with cheaper imports, leading to a decline in manufacturing productivity. The region’s Ministry of Planning indicates that the poor competitiveness of domestic goods is a major economic challenge to the small and nascent manufacturing sector in the Kurdistan Region owing to the increase in low-priced imported goods.

Resource movement effects occur as a result of high wages in the petroleum and non-tradable goods sectors, which reduce labor in the manufacturing and agricultural sectors. In the Kurdistan Region, the Ministry of Planning indicates that employment in non-tradable goods has increased. However, the oil sector may not be labor intensive. Auzer (2016) argues that a lack of skilled local labor, vocational training programs, and labor market regulations are the main reasons for limited participation of local labor in the construction, services, and oil and gas sectors. Most major public infrastructure projects
are implemented by foreign companies, which import their own workforces. Thus, the oil boom has little effect on employment and skills acquisition or on upgrading the local labor force originating from the agricultural sector.

Mismanagement of oil revenues is an underlying factor determining the economy's dependence on the oil sector. The oil sector may contribute to the economies of oil and gas exporters through effective allocation of fluctuating oil revenues. Incomes from the oil sector depend on oil prices in the world market and on extraction capacity. Therefore, volatile oil revenues pose a major threat to economic growth, as a result of macroeconomic instability stemming from inappropriate public expenditure policy through periods of boom and bust oil prices. In the Kurdistan Region, rising oil revenues induced excessive social spending on construction and infrastructure at the expense of production. In this regard, lack of appropriate investment guidelines often resulted in inaccurate evaluation and selection of public projects. This caused low efficiency and productivity in the Kurdistan Region, and thus, its economy has become increasingly vulnerable to drops in oil prices. Owing to its failure to establish an oil revenue fund, the KRG's budget is in severe deficit following the fall in oil revenues. Since the financial crisis, the Kurdistan Region has been highly indebted, and the KRG owes about $4 billion to international oil companies working in the Kurdistan Region (Rudaw, 2017).

Oil-exporting countries may undertake appropriate measures to cope with the volatility, uncertainty, and exhaustibility of oil revenues. For instance, one way to mitigate the impact of volatile oil prices is to establish an oil revenue fund through which to save a proportion of oil revenues. However, effective management of such funds requires well-designed fiscal rules to allow governments to benefit from reduced oil volatility, build a buffer for bad times, and sustain priority expenditure. The Kurdistan Region is facing severe fiscal policy challenges due to the absence of an oil revenue fund that might be used to smooth government expenditure, adjust the budget deficit when oil prices fall, and diversify the economy through investment in other economic sectors and abroad.

The manufacturing and agricultural sectors may be the main sources of economic diversification away from the dominant oil and gas sector. These sectors, which comprise non-oil tradable goods and food, exhibit lower growth than the services sector. It should be noted that it may be difficult for the Kurdistan Region to move directly toward industrial goods for at least four major reasons: An increasing urban population, a weak or non-existent industry sector, inadequate infrastructural development, and lack of ability to design and implement protective policies promoting local production. As an alternative, the agricultural sector has a high potential to contribute to an increase in the export of goods.

The Kurdistan Region might learn from the experiences of other resource-rich countries that have successfully developed their agricultural sectors as part of their policies of self-sufficiency in food supply and food security. For example, Indonesia spent 30% of its allocated budget on an agricultural development plan between 1969 and 1974, whereas Nigeria invested just 6% of its oil revenues on the development of its agricultural sector. As a result of the investment, real per capita agricultural output in Indonesia rose by 1.5% but reduced by 2% in Nigeria (Shepherd, 2013).

The resources sector contributes to the Kurdistan Region's economy through the direct effects and indirect investment planning for oil and gas outputs. This refers to physical outputs from the petroleum (oil and gas) sector, which feed into other parts of the economy. For instance, in general, crude oil is used as an input into refineries, petrochemicals, electricity production, and energy-intensive industries. The oil and gas sector generates manufacturing production, which leads to an increase in non-oil exports and greater self-sufficiency. However, the Kurdistan Region's oil and gas sector is not yet well-developed, and the refinery industry and other infrastructure are still being developed.

The quality of governmental institutions plays a major role in the effective allocation of oil rents in oil-exporting countries. A well-designed and functioning governance model for the oil and gas sector may help exporting countries to combat corruption, poor accountability, and lack of transparency, which are major obstacles to the effective use of oil revenues for productive purposes. The Kurdistan Region has failed to manage its oil revenues effectively because of its oil and gas sector's poor governance structure. Existing institutional frameworks suffer from conflicts of interest, corruption, non-transparent oil revenue allocation and spending, and low levels of accountability due to poor safeguarding and control. In the Kurdistan Region, the issue of transparency leads to disputes among political parties sharing power within the region and also in relation to the federal government. It thus reduces public trust in the government, leads to intergovernmental mistrust, and even extends to social conflicts.

5.2. Development of Agriculture and Water Resources
The role of the agricultural sector in the Kurdistan Region's economic development is undoubtedly fundamental and
a precondition for successful and balanced development. However, the region needs efficient agricultural production, processing, and distribution systems to achieve the needed economic development. The Ministry of Planning points out that after the oil boom in the Kurdistan Region, the rural population structure changed rapidly as a result of weakened rural policy and urbanization. On the one hand, the oil sector squeezed the agricultural sector through labor resource movement, but urbanized agricultural labor was unable to compete with imported labor in the construction sector. On the other hand, increased spending on imported goods reduced production and productivity in the agricultural sector. This indicates the prevalence of Dutch disease.

Oil revenues may contribute to the development of the agricultural sector through the development of agricultural infrastructure to achieve higher productivity. In this regard, developing the irrigation system may be vital for the agricultural sector's development. The region has invested in the construction of many dams to increase the utilization of water resources for various uses. Other factors include developing infrastructure, including roads, and supplying machinery and inputs such as seeds, fertilizers, pesticides, and extension services, as well as supportive product supply-and-demand management policies. Equally significant is the integration of agricultural product markets in the Kurdistan Region with regional and international markets to make the sector competitive in the long run.

The agricultural sector should be supported by allocations of oil revenues to enable it to pursue the objectives of generating employment in the agricultural sector, which will lead to a decline in overall unemployment rates; diversifying the economy to reduce vulnerability to fluctuations in exports and foreign exchange, which will result in an increase in GDP growth and more balanced trade relations; and providing raw materials for industry, which will generate productivity in other sectors. Another key aspect is to develop the rural economy to reduce the flow of population to urban areas and urbanization and reduce investment in infrastructure and service development in urban areas.

5.3. Development of Other Sectors

Oil revenues may contribute to the development of other sectors such as infrastructure, housing, water supply, electricity generation, health, education, media, communications, tourism, and various labor training programs. Resource allocations to the service sector are relatively high, but the quality and productivity of the sector are low. In this case, various factors play a role in the underperformance of the sector, including rent seeking, corruption, and weak institutions.

The education sector has benefited greatly from the oil boom. Before 2003, the region had four major public universities: Salahadeen, Sulimany, Dohuk, and Kirkuk. In 2013, it had 19 public and private, small and large, national and foreign universities with undergraduate, graduate, and specialized educational programs covering all sciences. Teaching and research quality are low, but these are gradually improving to keep up with the region's development needs. In an effort to enhance the capacity of the labor force and improve the quality of the education system, the regional government is allocating large grants to send public servants and students to well-known universities around the world to upgrade their education and skills. The process is slow, but positive effects can be seen in the services sector. Major progress has also been made in the health sector, but the quality and accessibility of public health services are limited, especially in rural areas and for low-income families, compared with the private sector, which targets middle- and high-income families.

Adequate public and private investment in tourism may make this sector more productive and economically successful. Tourism is expected to play a major role in the region's economic growth and service sector development. The massive inflow of petrodollars and lack of investment opportunities in mining and industry have led to investment in hotels, restaurants, and the information and communication industries, which form a strong base for the tourism industry. The Kurdistan Region is safe and has beautiful natural surroundings, and its people are hospitable. The large inflow of tourism, mainly from the rest of Iraq, is evidence of the positive impacts of infrastructural development that attracts more interregional and direct international investment to the region.

6. POLICY RECOMMENDATIONS

This section provides policy recommendations based on the discussion and analysis presented in this paper. The objective is to impact positively on policy relating to enhancing economic growth in the Kurdistan Region, to increase its ability and flexibility to mitigate the negative impacts of the resource curse and promote the blessing effects.

In relation to the two main effects of spending and resources, a policy to stabilize the exchange rate is beyond the ability
of the KRG. The regional government is responsible only for the regional economy and is therefore unable to impact on the monetary and fiscal policies of the federal government. The regional government’s flexibility has increased, as it has started to use dual currencies, the dinar, and the dollar, in domestic and international transactions. This has reduced the rate of exchange for foreign investors and the exchange risks of investment in the Kurdistan Region. The dollarization of the Kurdistan Region’s economy has been maintained, which is positive for the region’s international financial relations.

Among other recommended policy measures, it is important to prepare an economic plan for the region, a significant element of which should be oil revenue management. A key requirement is to build an oil and gas managerial model to promote the blessing effects while preventing the curse effects of oil and gas revenues. To reduce the region’s high dependence on oil and gas revenues, diversification of the economy with an emphasis on development and production of the industrial, services, and agricultural sectors is recommended, as well as the introduction of effective taxation to smooth the flow of public resources. The experiences of other resource-rich countries in creating well-designed stabilization funds for oil and gas revenues might be used in determining fiscal policies.

The Kurdistan Region needs an effective governance model for the oil and gas industry based on separation of policy-making, regulatory, and commercial functions to avoid conflicts of interest and increase transparency and accountability. Furthermore, effective oversight by independent local and international bodies is vital for the effective management of oil revenues. The Kurdistan Region’s parliament and local and international auditors must play an effective role in making oil and gas activities transparent and accountable. Establishment of a NOC might be used as a tool to achieve wider socioeconomic policy objectives, such as economic diversification and raised local educational levels.

A well-designed oil fund might increase transparency in revenue allocation and spending. It might also build trust between government and public, thus encouraging political and social cohesion in the Kurdistan Region. An effective oil fund might also smooth expenditure such as subsidies in the public sector and increase public investment in other economic sectors such as agriculture, tourism, infrastructure, and education. The oil and gas sector and other natural resources should be in the public domain and under national ownership. They should not be part of the current business-driven development strategy initiated and governed with little accountability by a politics–governance–business alliance.

The weak financial sector is another challenge that should be addressed by the KRG by strengthening the banking system to promote savings and thus increase investment in the private sector. Furthermore, the weak and almost non-existent taxation system in the Kurdistan Region needs effective and long-term reform to make it progressive and diversified, with good coverage to generate public revenues.

To address the crowding-out effects relating to Dutch disease, it is vital to build an effective fiscal fund to help promote small- and medium-sized enterprises in the Kurdistan Region and thereby support economic growth and development. Since SMEs in the service sector are labor intensive, they may play a major role in increasing employment, developing skills, and alleviating poverty. Therefore, it is important to develop regulations relating to the private sector, such as retirement and insurance provisions.

The low quality of higher education and vocational training institutions hinders the effective involvement of local graduates in the oil and gas sector and thus localization of the oil and gas industry in the long term. Therefore, an increase in public capital investment allocations for human resource development is essential to develop the skills required by labor markets in the private sector, and particularly, in the oil and gas sector. Private universities and hospitals were initially established as objects for investment, with little consideration of service quality. Quality and its improvement need to be regulated and brought in line with the needs of society.

Diversification of trading routes is vital for the Kurdistan Region’s economy as it is landlocked. The Kurdistan Region’s major source of income is oil revenues, but the only way for Kurdish oil to be exported to global oil markets is through Turkey’s Ceyhan port. This makes the KRG’s economy heavily dependent on political and economic relations with Turkey. A second export route for crude oil might be established through Iran to Asia. Engagement in trade and investment in transport infrastructure are strongly influenced by Turkey and Iran, which take advantage of the Kurdistan Region’s landlocked condition to engage in political interventions in the region’s autonomy.

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Sir,

Companies all over the globe have different business strategies. Some of these companies place a lot of emphasis on revenue generation in order to remain in business. To them, the top line in the financial statement is the most important. Market shares equal success. Other companies are more concerned with the end results. To these, the bottom line in the financial statement is the most important thing because that represents the total effort of the company.

Regardless of whether one takes the sales or financial perspective, what is really important is how a company can generate a healthy top line and convert that into a meaningful bottom line. To do that successfully, the company will require the best effort of its people.

Managing the human resource efficiently and effectively is increasingly becoming the number one consideration for dynamic organizations as there are certain limitations to the inputs of technology, however advanced. Since sophisticated technology is available worldwide to the firm that can afford to acquire it, possessing this technology does not guarantee the firm will succeed. Ultimately, it is people and their efforts that are going to make the difference between succeeding and failing in a business.

The Kurdistan organizations today cannot ignore the fact that their employees will soon become diversified in terms of background. Besides, ethnicity, gender, religion, and education, there are some other very important considerations such as individual needs, motivations, and expectations that workers have and bring with them into an organization. These are not ordinary fleeting needs that evaporate soon after a worker has found a job. In fact, they continue to demand some form of satisfaction and fulfillment throughout their entire career. Hence, managing the workforce requires an approach where compatible solutions have to be found to meet the diversity of needs of the people in the organization.

However, providing a stable on-going employment relationship is one thing, more importantly it is the kind of people that the company hires that really requires close scrutiny because who you bring in will determine, to a great extent, the type of company you will have.

Recruitment is often thought of as scanning the employee’s past performance to see how that experience can fit into the job. The employee’s successful past, however, does not guarantee that the employee will perform well in the new organization. Things such as new targets, different work systems, different organizational culture, and a change of personal goals may affect the employee and cause a slack in performance. What recruitment has to address is how to hire people with potential (may or may not have a terrific past) and gradually develop that potential to contribute to the organization. Hiring people to maintain the status quo is something a good number of recruiters would like to avoid in ever rapidly and competitive business world.

Furthermore, the oversimplified solution of equating wage to employment has seen its parameters broadened. Today, compensation has taken on a whole new concept that compensates, motivates, and reinforces work. It is a satisfier of immediate needs as well as a provider for long-term requirements.

An organization is only as brilliant and as successful as its people. Certainly, people in the company should not be relegated to the level of being just a part of the production process and an expenditure to the company. Where the
company persists in viewing its people as subservient to the array of sophisticated machinery on the shop floor, this vital human resource will only be seen as an appendage to the production process and will remain largely untapped.

1. TAKING A HOLISTIC VIEW

Strategic human resource management takes a holistic view in its application. It considers externalities that may affect the organization as well as the internal structure and its business. It encompasses personnel administration, human resource planning, work design, and people development. It assumes a proactive role. A human resource manager develops and integrates human resource plans to achieve organizational goals. Quite importantly, he plays an active role and shapes corporate culture through selection, mentoring, and development.

Human resource management is currently a rapidly growing field even in advanced countries. As the work paradigm shifts and old work definitions and patterns of work change, the human resource management challenge intensifies. The retooling of the workforce should not be a short term expense but rather a long term commitment and for KR to progress in the right direction, its effort in developing her human resources should be constructed in a way to avoid a mismatch.

2. DEVELOPING HUMAN RESOURCE IN KURDISTAN REGION

More rapid interest in human resource management in Kurdistan Region is essential as the economy may be shifting very much from just oil to industrial, and again, now from low technology industry to high technology industry where collective work in organizations demands more effective management of sophisticated technology and highly skilled people. Japanese managers have long recognized the importance of human resources since Japan’s national economic thrust lies in manufacturing and market adaptation. Singapore, South Korea, Malaysia, and Taiwan are traveling along that management path too.

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Sir,

The Kurds in Iraq have won the international community’s trust as they have been part of the solution to the issues facing the region. Dissatisfied with Baghdad and overconfident that the regional countries will not backlash due to the referendum, the KRG proceeded with the referendum for independence in the Kurdistan region including the disputed areas. The KRG decision-makers were vigilant enough to avoid playing the nationalist card and make the case exclusively as a domestic affair. Neither neighboring countries, in which many Kurds are residents, nor the international community supported the referendum. In this article, I would like to bring certain aspects of the Kurdistan Independence Referendum into a better light of appreciation. It will be argued that it is not about the process rather the structure of the international regime of recognition. The international community has opted for the already dysfunctional Iraq.

Iraqi Government enforced punitive measures against the Kurdistan Region as the Kurds in Iraq, frustrated by the federal government’s dysfunctionality, pushed for the referendum for independence on September 25, 2017. That was not something of a surprise for the Kurds in Iraq and the wider Middle East. Cancellation of the Severe Treaty of 1923, the overthrow of the Ottmans by Kemal Ataturk, and Iran and Iraq’s refusal to include Kurds’ demand for statehood triggered a century-long instability in the region. Turkey, Iran, Syrian, and Iraq rarely find a mere common interest, but when it comes to halt Kurdish statehood aspirations in their respective countries, they all appear to be united. Saad Abad pact of 1937, Baghdad Pact of 1955, Algeria’s treaty of 1975, and a recent Kurdistan blockade are historical evidences. The misperception by the governments of these countries of the KRG intentions would be a recipe for perpetual instability in Iraq and beyond. The KRG claims that Baghdad has failed to treat the Kurds as equal partners. Thus, no sign of de-escalation of the tension is evident between the KRG and the Iraqi federal government in the foreseeable future. For instance, the new Iraq’s political structure of the post-Saddam regime allowed the KRG to legally engage in international relations for the first time. According to article 117 of the Iraqi constitution, “The regions and governorates shall establish offices in the embassies and diplomatic missions, in order to follow up cultural, social, and developmental affairs.” Subsequently, the KRG formulated a foreign policy agenda that elevated the Kurds’ global status to unprecedented heights. Baghdad has always been sceptical about the KRG’s foreign policy as a sub-state unit. Activism of subnational entities in the international arena is known in literature as paradiplomacy. Iraq was afraid that the Kurds ultimately would pursue a secessionist form of foreign policy. Bingol (2016) referred to it as protodiplomacy. The KRG referendum exacerbated the existing tension between both sides to a level that is widely believed to be obstinate.

Massud Barzani’s very last statement as president of Kurdistan was a reiteration of historical distrust that exists in the Kurdish collective memory toward Baghdad. He highlighted that Baghdad does not believe in power sharing and partnership. On the contrary, he asserted that centralized policies which are against new Iraq’s federal, and democratic and pluralistic constitution is in practice. Before the referendum, the KRG reported 55 articles of Iraqi constitution not honored by the federal government, including provisions on revenue sharing and Article 140 mandating the resolution of the disputed territories problem.

The KRG’s September 25 referendum Tipped diplomatic support in favor of Baghdad in a rather dramatic form. The main powers’ opposition, including the US, the KRG’s ally, and neighboring countries, towards the referendum Provided Baghdad with moral and diplomatic justifications. Seeing the very survival and autonomy of the region in jeopardy, the KRG accepted Iraq’s conditions. In an interview to the Wall Street Journal, Falah Mustafa, head of the KRG Department of Foreign Relations, stated, “It
is not easy to hide my worries about perpetual hostilities between Baghdad and Erbil. Bagdad treats us not as a partner but as an opponent.”

Despite all this, the KRG has proven to be a trustable anchor for the regional stability. 25 years of self-rule shows that the Kurds are pragmatic toward regional realities. According to Nechirvan Barzani, the KRG Prime Minter, “The government’s policy is to establish long-term relations with Iran and Turkey based on mutual respect and interest.” “We would like to be part of the solution not the problem in the Middle East” being aware of its limited options, and the KRG has opted for developing ties with Iran and Turkey. Playing a significant role in international coalition for fighting ISIS provided the KRG, a considerable diplomatic opportunity. The coalition forces treated the Kurdistan Region as a country accordingly as president has been received by the head of states. Believing that they play a major role in the balance of power in the region as a substate actor, and the Kurds wish for a scenario in which they could bandwagon with upper powers to gain even more autonomy in Iraq. Iraqi Kurds’ refrained from playing the nationalist card before the referendum, as the KRG understood a potential backlash from Turkey and Iran. Turkey and Iran fear of domino effect as they perceived it an inspiration for their own Kurds to obtain more rights (Lundgren, 2007). Their steadfast cooperation against the KRG paid off. They collectively hindered the referendum and punished the KRG with diplomatic, economic, intelligence and military blockade.

The regional countries well understand that the Kurdistan Region is the terrestrial common denominator. To pursue a long-term agenda forward and guarantee boarder security, Turkey and Iran have to come down to a compromise towards the KRG. An instable Kurdistan Region within Iraq would negatively impact the security of both countries as they share approximately one thousand kilometers of boarder with the KRG. Knowing that the independence bid is temporary put off they will certainly take steps to gradually normalize their cooperation with the KRG. Realpolitik is the main rule of international relations when it comes to nations’ self-determination. I am disappointed that oppressed nations have no friends,” Massud Barzani said in an interview to CNN. The Kurd’s aspirations for statehood have been in vain; in the words of Bernard-Henri Lévy “Night has fallen onto Kurdistan.

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1. INTRODUCTION

There is undoubtedly prolific research and debate as to whether a large class size may have any bearing on student achievement. There is undoubtedly prolific research and debate as to whether a large class size may have any bearing on student achievement. This applies to schools, e.g., (Blatchford, 2003) or even in higher education. Some of these studies indicate a negative effect of class size on student performance and satisfaction according to the studies of Kokkelenber et al., 2008, and Mandel and Sussmuth, 2011, while according to the studies of Chapman and Ludlow (2010), Johnson (2010), and McDonald (2013), other studies such as the arguments by Biggs (1998), Ceci and Konstantopoulos (2009), and Rotherham (2011) do not indicate an indifference.

1.1. Institutional Context

In the past few years, the university (whose name shall remain anonymous) has undergone tremendous change. One such fundamental change has been occasioned by the shift from being a specialist, elite higher education provider to a more expanded enrollment with a sort of “open arms” admissions policy. At inception in 2006, the original mission was for the university to act as the Center of Excellence in its region and to offer specialist social science training, an area that had been identified as lacking capacity at the time. So to start with, only four undergraduate programs were launched: in Politics and International Relations, Business and Management Sciences, Sociology, and Computers Applied IT. Besides

The influence of class size on the university students’ performance has long been a subject of interest. While it is generally believed that, in a small class, there is more student-teacher interaction and thus more effective learning than in a large class (Tseng, 2010), Toth and Montagna (2002) in an analysis of literature from various studies on the subject discovered that there were mixed results; some of them indicate a positive relationship while others indicate the contrary.

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The influence of class size on the university students’ performance has long been a subject of interest. While it is generally believed that, in a small class, there is more student-teacher interaction and thus more effective learning than in a large class (Tseng, 2010), Toth and Montagna (2002) in an analysis of literature from various studies on the subject discovered that there were mixed results; some of them indicate a positive relationship while others indicate the contrary.

1.1. Institutional Context

In the past few years, the university (whose name shall remain anonymous) has undergone tremendous change. One such fundamental change has been occasioned by the shift from being a specialist, elite higher education provider to a more expanded enrollment with a sort of “open arms” admissions policy. At inception in 2006, the original mission was for the university to act as the Center of Excellence in its region and to offer specialist social science training, an area that had been identified as lacking capacity at the time. So to start with, only four undergraduate programs were launched: in Politics and International Relations, Business and Management Sciences, Sociology, and Computers Applied IT. Besides
this, there was also a compulsory Access Program, a 2-year preparatory program where all the students enrolled were expected to undertake a 2-year intensive training in English, communication skills, and life skills in general. After the 2-year Access Program, the students would then progress to their respective undergraduate programs. The admission process was also very rigorous, with applicants having to undergo aptitude tests and all that. In the first admission year, only 100 students gained entry out of a large pool of up to 600 or so applicants. They would then be distributed to the four programs. In casual interview with one of the former lecturers, he thusly said: “I had the privilege of teaching some of these students, having been with the university since 2009, and admittedly the quality and caliber of students then was quite remarkable. I believe most of my colleagues had the same opinion on this lot” (Anonymous, Interview, May 10, 2015).

First forward to a few years later, there came a new policy to gradually increase the enrollment. Understandably, this was meant to build a critical mass for the impact of the programs to be felt and also to secure the future of the university. Hence, year by year, the enrollment went up from 100 to 180 and then double to 360. That is not all, it went up further to 450 and ultimately to 600 currently. The number was considered quite staggering, given that the facilities have not been extended commensurately and we are still based on the same old and small campus that was meant to host fewer students.

Other changes that were effected over the years included the abolition of the Access Program and extended the duration of undergraduate program from 3 to 4 years.

1.2. Statement of the Problem

Against the aforementioned backdrop, in the first semester of the academic year 2014–2015, the undergraduate year two students took a module “Principles of Marketing.” It was such a “large” class of up to 81 students put together. Throughout the semester, the lecturer reported that he had to contend with a lot of challenges that come with managing such large groups of students, including lack of concentration by students and other behavioral issues. As one would expect, the overall student performance was also not quite satisfactory. Taking cognizance of this, in the second semester, it was resolved within the department to split the class into three groups as a necessary intervention.

This study, therefore, was intended to study the effect of this intervention on the students’ overall performance in the second semester.

1.3. Research Question

The central question in this research was:

- Is there any relationship between the class size and students’ overall academic achievement?

Answering this question was pivotal in proving the case for small class sizes or otherwise.

1.4. Hypothesis

If \( x \) = marks in semester one, before the class is split, and \( y \) = marks in semester two, after the class has been split, and the respective means are \( \mu_1 \) and \( \mu_2 \), the relevant hypothesis in this study is:

\[ H_0 = \mu_1 = \mu_2 \] (population means are equal, i.e., there is no relationship between class size and class performance).

\[ H_A = \mu_1 \neq \mu_2 \] (population means are not equal, i.e., there is a relationship between class size and class performance).

1.5. Scope and Limitation

A key assumption of this study is that ceteris paribus only class size may influence student achievement. Like most empirical research on class size which utilizes outcome measures such as final course grades, standardized test scores, or other course evaluation data (Johnson, 2010), other factors that may also comprise learning achievement are often ignored. However, arguably, like in this instance, course offerings at different intervals may not be exactly the same thus raising concerns as to whether we might be comparing “apples” with “oranges.”

1.6. Class size: What is Small or large?

This is the question that has perhaps been asked so many times. Hence, what makes an appropriate class size and when would a class be considered too small or too large to be meaningful?

Class size even though often confused with the staff-student ratio (SSR) means quite a different thing and is used to refer to the actual number of learners taught by a teacher at a particular time as compared to SSR which may include even staff with other roles outside the classroom (Ehrenberg et al., 2001).

In some countries or institutions there may be legislation or policy on maximum class size especially in schools. For example, in Norway there is the rule of 30 students (Bonesronning, 2003), whereas in the US it varies from state to state, where for some it is 15, while others have it at 17, yet
others at 20 (Ehrenberg, Brewer, Gamoran, & Willms, 2001). In our university there has not been any policy of sorts and the interventions might as well be considered just ad hoc by the department.

According to Maringe and Sing (2014), there is generally no well-accepted definition of what a typical large class is even though they indicate that most empirical studies in this area tend to put at classes with more than 100 students based on evidence drawn from such classes.

While larger class sizes present economies of scale and opportunity for increased revenues, especially in the light of economic realities in recent years, it is not an easy choice either. Stakeholders such as higher education administrators are faced with a dilemma as to how to maintain and enhance their institutional reputation through small student-to-faculty ratios among rising education costs. Students too are known to consider class size in their choice of university, study programs, and courses (Westerlund, 2008; Bedard and Kuhn, 2008).

2. RESEARCH METHODOLOGY

To tackle the research question, the study employed a quantitative design utilizing two data sets, i.e., students’ marks in semester one as a large group before the split and the marks in the second semester after the split. The data were then analyzed using the paired t-test, a technique usually used when dealing with two samples that are dependent (Rosner, 1982; Yang and Tsiatis, 2001), like in this case, where each instance in one dataset has a unique connection with the other data set. The samples from the data sets are drawn at random. The following formula is used to determine the sample size:

\[ n = \frac{(Z\text{-score})^2 \times \text{StdDev} \times (1-\text{StdDev})}{(\text{margin of error})^2} \]

=68

Where:

Margin of error = 5%
Confidence level = 95%
Population size = 81

The theoretical base in the study revolved around the two dimensions of class size and students’ academic achievement. To accomplish a systematic review of literature, Creswell’s (2002) five-step process was applied: “…identifying terms to typically use in your literature search; locating literature; reading and checking the relevance of the literature; organising the literature you have selected; and writing a literature review” (p. 86).

2.1. Ethical Issues

The study and all its aspects had to be subjected to strict ethical guidelines and standards. For purposes of confidentiality, the institution has been anonymized instead of using the actual name. The identities of any of the participants have also not been revealed.

3. DATA ANALYSIS AND DISCUSSION

Table 1 shows the raw data for the samples and the analysis performed thereon.

3.1. Hypothesis Test

The paired t-test is used here to compare one set of data(x) with a second set(y) from the same sample. It is used to compare the “pre” and “post” student scores of splitting the class and to determine whether any change might have occurred.

The formula is presented below.

\[ t = \frac{\bar{x} - \Delta}{\frac{s}{\sqrt{n}}} \]

Where:

- is the mean of the change scores,
\( \Delta \) - is the hypothesized difference (0 if testing for equal means),
s - is the sample standard deviation of the differences, and
n - is the sample size.

While the degrees of freedom is \( n=1 \).

Using Microsoft Excel to perform the calculation, the result in Table 2 is derived. The two-tailed test is pictorially presented in Figure 1, indicating that there is a significant difference between the means with probability distribution for a 95% confidence level.
### Table 1: Raw sample data and calculation

<table>
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<tr>
<th>S. No</th>
<th>Student No.</th>
<th>$x$=marks in semester one before the class is split</th>
<th>$y$=marks in semester two after the class has been split</th>
<th>Difference</th>
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(contd...)
**Table 1: (Continued)**

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<th>S. No</th>
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<th>x=marks in semester one before the class is split</th>
<th>y=marks in semester two after the class has been split</th>
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**Standard deviation**: 7.33879

**Standard error of difference**: 0.88996

**T-alpha half at 95% confidence interval**: 1.996008

**Lower confidence level**: 8.635401

**Upper confidence level**: 12.18813

**Table 2: t-test: paired two sample for means**

<table>
<thead>
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<th>Statistical measures</th>
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**CONCLUSION**

Evidently, from this study, it can be derived that there is a positive relationship between class size and student achievement. Therefore, the contention that class size has no relation with student achievement (Ceci and Konstantopoulos, 2009; Rotherham, 2011) is debunked. However, one key assumption of this study is that *ceteris paribus* only class size may influence student achievement. Practically, there may be several factors that may also come into play *inter alia* student motivation, learning facilities, teacher’s competency, subject complexity, and so on. These have not been considered or explored in this instance. At the same time, the study only serves to establish the efficacy of small size classes but does not establish how small is best. As author Gladwell (2013) puts it, there is definitely a point below which being small may
not produce any better outcomes but may instead produce even worse outcomes.

REFERENCES


The Effects of Globalization on the Environment

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A B S T R A C T

In multiple standard ordinary least squares regression models, the effects of 26 standard predictor variables, including the “four freedoms” of goods, capital, labor, and services, are tested on the following indicators of sustainable development: avoiding net trade of ecological footprint gha per person, carbon emissions per million US dollars gross domestic product, CO₂ per capita, environmental performance index (EPI), global footprint per capita, happy life years, happy planet index (HPI), and ln (number of people per mill inhabitants 1980–2000 killed by natural disasters per year + 1). This research shows that the apprehensions of quantitative globalization critical research are fully vindicated by the significant negative environmental effects of the foreign savings rate. High foreign savings are indeed a driver of global footprint and are a blockade against a satisfactory HPI performance. The New International Division of Labor model (Froebel et al., 1980) is one of the prime drivers of high CO₂ per capita emissions. MNC penetration, the master variable of most quantitative dependency theories, blocks environmental performance (EPI-index) and several other socially important processes. Worker remittances have a significant positive effect on the HPI and happy life years.

Keywords: Environment, Globalization, International Migration, International Political Economy, International Relations

1. INTRODUCTION

The issues under empirical scrutiny here have an enormous importance for the future of policy-making on a global scale and also in Europe. The EU-2020 strategy, which substitutes the now defunct “Libson agenda,” which was the main policy strategy of the European Union from 2000 to 2010¹, now aims to make Europe a lot “greener” by 2020. Europe must acquire global leadership on climate change and development of new sources of sustainable growth and social cohesion. Such attempt corresponds to the perspective presented by the Commission President José Manuel Durão Barroso². Europe should become a low emission economy, should move in particular toward decarbonizing the electricity supply and the transport sector, and should develop clean and electric cars³. Barroso underlines, on the other hand, his unmistaken belief in globalization and “world economic openness” as a driver of Europe's future strategy:

“Openness is critical to Europe’s future competitiveness. This is not just a question of political preference. It is in Europe's self-interest as the world's leading exporter.”

In this quantitative research paper, the solid and accumulating macropolitical and macrosociological evidence, published in the world’s leading peer-reviewed social science journals, which seems to indicate that there are indeed serious contradictions between unfettered globalization and unfettered world economic openness and sustainable

¹ To make the EU “the most competitive and dynamic knowledge-based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion,” by 2010 (see: http://www.europarl.europa.eu/summits/ls1_en.htm)

² http://ec.europa.eu/commission_2010-2014/president/about/political/index_en.htm

³ http://ec.europa.eu/europe2020/index_en.htm

⁴ http://ec.europa.eu/commission_2010-2014/president/about/political/index_en.htm
development, are reanalyzed. For the first time, this research link the deliberations about the EU-2020 strategy with the relatively coherent tendency of these recent studies, most notably Dick and Jorgenson, 2010; Jorgenson and Burns, 2007; Jorgenson and Burns, 2003; 2004a, 2004b; 2005; 2006a, 2006b; 2007a, 2007b; 2008; 2009a, 2009b; Jorgenson and Burns, 2004; Jorgenson et al., 2007; Jorgenson and Kuykendall, 2008; Lawrence, 2009; Longo and York, 2008; Mostafa and Natarajan, 2009; Mostafa, 2010a, 2010b; Nugent and Shandra, 2009; Shandra, 2007a, 2007b; Shandra et al., 2008; Shandra et al., 2009; Shandra et al., 2009; Shandra et al., 2004; and finally, Shandra et al., 2008, 2009, who all suggested that there seems to be a strong interaction between what these empirical studies tend to call “transnational capitalist penetration” and “environmental degradation.”

The rest of this study is organized as follows. In section 2 and due to limitations of space, the main critical theories and earlier major studies on the subject are only very briefly sketched. Section 3 presents the data and the research design. The main results are presented in Section 4, while Section 5 summarizes the study. The appendices document the results and provide an invitation for the research community to further use and test the explanations.

2. ENVIRONMENTAL DEVELOPMENT THEORY

Due to the usual limitations of space in the International Social Science Journals, the sketch of the relevant theories under scrutiny here is very brief indeed. Let us start with what could be termed as the official neo-liberal “Brussels/Paris Consensus” of the EU-Commission and the OECD. For the European Commission, the main threat today is not globalization, but significant fiscal deficits, rising debt ratios and the costs of aging populations, which together pose the most significant challenge for Europe’s fiscal sustainability. For the commission, first of all, a stable and well-functioning financial sector is necessary after the 2008 crisis. Member states, which do not tap their full employment and productivity growth potential because of sectors with low competition, a weak business environment and obstacles to employment and labor reallocation, must act. Appropriate labor market reforms are needed in a number of countries so as to increase wage flexibility, reduce segmentation, and improve incentives to work for all. An efficient regulatory business environment, administrative efficiency as well as promoting a higher degree of competition must be provided; member states face important challenges regarding the human capital endowment and upgrading of their economies. As it is too well known and one even risks stating the obvious, the neo-classical/neo-liberal approach, culminating in the Washington Consensus and the Brussels/Paris-Consensus, wants open markets and no barriers and thinks that the private sector is much better equipped than the public sector and intends to reduce public deficits (Tausch and Ghymers, 2006). Indicators of “economic freedom” will be dramatically and positively associated with economic, social, and even environmental performance. The declining and restructured public sectors, deregulation, and privatization, falling wage shares higher labor market flexibility, higher savings, international competition for locations of productions, and international tax competition, and absence of active anticyclical policy of price stability and budget consolidation will be the main drivers of efficiency, economic growth, investment and a cleaner environment.

The omnipresent neoliberal approach would exactly maintain such a position, stressing that “market methods” for pollution control are the best alternative. Economists should care about the determination of fee schedules, issues of spatial and temporal variation in fees or allowable emissions under permits, the life of permits and their treatment for tax purposes, rules governing the transfer of pollution rights, procedures for the monitoring and enforcement of emissions limitations, and so on. In the neoliberal flagship article on environmental economics, Cropper and Oates welcome the “growing receptiveness to incentive-based approaches to environmental management” (Cropper and Oates, 1992. p. 728-731).

One very consistent counter perspective to this “Commission approach” is the Kalecki/Steindl paradigm (Guger et al., 2004), based on the works of the political economists Michal Kalecki (June 22nd 1899–April 17th 1970) and Josef Steindl (April 14th 1912–March 7th 1993), emphasizing the factors of anticyclical policy (cycle and trend have the same determinants), demand, international cooperation, lower household savings, a rise of the public sector, a rising wage share, tax coordination, technology, and educational policy as promoters of economic growth and employment (Kalecki, 1943, 1966, 1968a, 1968b, 1971, 1979, 1996, Kalecki and Feiwel, 1972; Steindl, 1952, 1979, 1988, 1990). The contrast

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6 See note above.

7 With 316 quotations in the ISIW-Web of Science documentation system, the analysis by Cropper and Oates is the most often quoted article in the field of global “environmental economics.”
with the contemporary neoliberal agenda could not be
cast the contemporary neoliberal agenda could not be

Dependency and world systems theories, by contrast, culminate in predicting, with Cardoso, 1979, the following processes to happen:

- There is a financial and technological penetration by the developed capitalist centers of the countries of the periphery and semi-periphery,
- This produces an unbalanced economic structure both within the peripheral societies and between them and the centers,
- This leads to limitations on self-sustained growth in the periphery,
- This favors the appearance of specific patterns of class relations, and
- These require modifications in the role of the state to guarantee both the functioning of the economy and the political articulation of a society, which contains, within itself, foci of inarticulateness and structural imbalance (Cardoso, 1979).

For these approaches, low comparative price levels, high foreign savings, the openings of the national economies to free production zones (FPZ), a low MNC outward investment presence on the world markets (MNC headquarter status), and a high MNC PEN - stock of Inward FDI per gross domestic product (GDP), as well as a high world economic openness, measured by the export-share per GDP + import-share per GDP, all could constitute possible negative (sustainable) development bottlenecks.

This article duly take into account several indicators of globalization and dependency, which are being measured by the following different variables of “independent development” (for a more thorough debate on globalization and inequality, see also: Herkenrath and Bornschier, 2003; Herkenrath et al., 2005; Heshmati, 2003, 2006a, 2006b, 2006c, 2007; Heshmati and Lee, 2010; Heshmati and Oh, 2006; and Heshmati and Tausch, 2007).

- MNC penetration (MNC PEN) measures the different degrees of weight that foreign capital investments have in the host countries, i.e., the UNCTAD percentages of the stocks of multinational corporation investments per total host country GDP. This research tradition has been especially developed, as already mentioned, by the Swiss sociologist Bornschier and his school. Bornschier and his school predicted a strong negative determination of development by a high MNC penetration, and due to the negative consequences, monopolies have on the long-term development trajectory of countries.
- This research also ascertains the growth of MNC penetration over time (DYN MNC PEN), from 1995 to 2005. The Bornschier school expected short-term dynamic effects from such MNC penetration increases.
- Equally, Bornschier and his school already developed a high theoretical and empirical awareness about the long-term consequences of the presence or absence of “MNC headquarter status” (MNC HEADQU), measured in this analysis by the indicator MNC outward investments (stock) per GDP. Bornschier and his school expected that a high headquarter status mitigates against the long-term negative effects of MNC penetration.
- FPZ employment as percentage of total population is the indicator, best suited to measure the new international division of labor (NIDL). Froebel et al., 1980, already predicted the unfettered rise of this model (“export processing zones [EPZ]”), especially in China and Southeast Asia. Froebel et al., 1980, was followed, among others, by the studies conducted by Ross, 2004; and Singa-Boyenge, 2007. EPZ or “FPZ” already accounts for some 80% of the merchandise exports of countries such as China, Kenya, the Philippines, Malaysia, Mauritius, Mexico, Senegal, Tunisia, and Vietnam. 3500 EPZs in 130 countries of the world now employ 66 Million people, among these 40 million employees in China.
- “Low comparative price levels” or “unequal exchange/unequal transfer” (Kohler and Tausch, 2001) is operationalized here simply by ERD or ERDI, the exchange rate deviation index, which measures the degree, to which globalization has contributed to lowering the international price level of a country; i.e., it is an indicator about the openness of the price system vis-à-vis the pressures of dependent insertion into the global economy. Ever since Balassa, 1964, and Samuelson, 1964, economists have linked the comparative price level to the price relationship between tradables and non-tradables. Neoliberals assume that globalization will lead toward a lowering of comparative price levels around the globe. ERD is calculated by the ratio between GDPs at purchasing power parities, divided by GDP at current exchange rates (Kohler and Tausch, 2001).
- For dependency authors, foreign savings show the weight that foreign savings, mostly from the centers and richer semi-peripheries, have in the accumulation process of the host countries in the periphery and semi-periphery.
It is calculated by the difference between the share of investments per GDP and the share of savings per GDP.

These three theoretical positions, the neoliberal approach, the “neo-Keynesian” Kalecki–Steindl paradigm, and the dependency/world systems research, inspired a great number of empirical studies not only on economic growth but also on sustainable development.

A real “growth industry” of macro-quantitative sociological and political science research over the last years looked empirically at the “bottlenecks” and “drivers” of the environmental situation of the countries of the world system. However, as yet, notably enough, not a single of these studies used the combined Yale/Columbia indices of the environmental situation, especially the “Environmental Performance Index (EPI),” available today for a very wide range of countries. These studies relied instead of a startling variety of approximately 18 major environmental indicators. The indicators include: carbon dioxide emissions; deforestation; ecological footprint; emission of organic water pollutants; energy use; environmental protection efforts; fertilizer and pesticide consumption; greenhouse gas emissions; growth of ecological footprint; industrial organic water pollution, infant mortality; nitrogen oxides, volatile organic compounds, carbon monoxide, and carbon dioxide gas; nitrous oxide emissions; organic water pollution; pesticide consumption; pesticide and fertilizer use; threatened mammal species; total carbon dioxide emissions and emissions per unit of production to water pollution; and infant mortality. The indicators are often available for only a limited number of nations, and exclude the experience of the countries of East and Central Europe and the former USSR, and other post-communist nations.

From a conceptual viewpoint, this de-facto exclusion of former (in Eastern Europe and the former USSR) or continuously communist nations (in Asia and Cuba) in most of the most widely circulated research publications is a major and very serious theoretical weakness. Excluding the real of former Communism from the horizon of studies almost automatically biases against neoliberal theories because the heavy state sector influence under communism is historically associated with the extreme ecological legacy of failure of “real existing socialism” in ecological performance (for a review of these issues, inter alia: Burckett, 1999; Auer and Reuveny, 2001). The environmental crisis, blamed in most empirical studies on the workings of “transnational capitalism,” was, especially, severe in the heavy industrial and polluted communist countries before the transformation to some form of capitalism and before the large-scale penetration of these countries by transnational capital.

Nevertheless, the relatively coherent tendency of these studies, most notably Dick and Jorgenson, 2010; Jorgenson and Burns, 2007; Jorgenson, 2003; 2004a, 2004b; 2005; 2006a, 2006b, 2007a, 2007b; 2008; 2009c, 2009d; Jorgenson, and Burns, 2004; Jorgenson et al., 2007; Jorgenson and Kuykendall, 2008; Lawrence, 2009; Longo and York, 2008; Mostafa and Natarajan, 2009; Mostafa, 2010a, 2010b; Nugent, and Shandra, 2009; Shandra, 2007a, 2007b; Shandra et al., 2008; Shandra et al., 2009; Shandra et al., 2004; and finally, Shandra et al., 2008, 2009, suggests that there seems to be a strong interaction between transnational capitalist penetration and environmental degradation, especially in third world countries.

Considering the enormous quantity of migration-related human transport and its environmental impacts around the globe, there is as yet not a single essay available on the relationship between the freedom of movement and the environment. The divisive issue of migration policy divides opinions around the globe, and it also divides opinions among the global social science research community. In dealing with the issue of migration, first one might notice that - with the laudable exception of Sanderson, 2010, which analyzed the effects of migration on the Human Development Index - there is no solid cross-national evidence available about the macrosocietal effects of migration on national development.

Most liberal and left of the center-oriented global political discourse would expect that worker remittances have very general, beneficial general and also environmental effects for the sending countries and that they amount to a very huge transfer machine of wealth from the rich, migration recipient countries to the poor, and migration sending countries. Migration is thus seen as a win-win situation (UNDP HDR, 2009). UNDP HDR 2009 maintains that financial remittances are vital in improving the livelihoods of millions of people in developing countries. There is a positive contribution of international remittances to household welfare, nutrition, food, health, and living conditions in places of origin. Even countries whose development path was driven by conflict can be net remitters. This has been illustrated in history in Bosnia and Herzegovina, Guinea- Bissau, Nicaragua, Tajikistan, and Uganda, where remittances helped the entire war-affected communities to survive. In some international migration corridors, money transfer costs have tended to fall over time, with obvious benefits for those sending and receiving
remittances. An important function of remittances is to diversify sources of income and to cushion families against setbacks such as illness or larger shocks caused by economic downturns, political conflicts, or climatic vagaries (UNDP HDR, 2009, p. 72). Similarly, the UNDP also maintains that there should be significant aggregate gains from movement, both to movers and to destination countries. The destination countries will capture about one-fifth of the gains from a 5% increase in the number of migrants in developed countries, amounting to US$190 billion dollars. Immigration increases employment, with no evidence of crowding out of locals, and investment also responds vigorously to immigration. Population growth due to migration increases real GDP per capita in the short run, one-for-one (meaning that a 1% increase in population due to migration increases GDP by 1%). However, not all of the optimistic forecasts of the liberal migration policy school of thought can be maintained on a 1:1 basis. It cannot be rolled out that as inward migration increases - ceteris paribus - the environmental strain variables in the migration recipient countries are affected not only due to the direct, mostly transport related effects, but also due to the priorities made in favor of economic growth and not the environment, which are observable in the majority of the migration sending countries in international value surveys (protecting environment vs. economic growth - data from the latest wave of the World Values Survey, 2004–2007; World Values Survey, September 20th 2010; online data analysis from http://www.wvsevsdb.com/wvs/WVSAnalyse.jsp).

3. DEVELOPING THE RESEARCH DESIGN AND PRESENTING THE DATA

This investigation duly acknowledges many of the key determinants of economic growth, mentioned in the economic literature, such as current shares of the country’s inhabitants in total world population, calculated from UNDP data; the famous Heritage Foundation 2000 Economic Freedom Score; absolute geographical latitude, adapted from Easterly’s growth theory; the UNDP figures for long-term annual population growth rate, 1975–2005 (%); the trade-off between development level and development performance, otherwise also known in economics as “conditional convergence” (ln GDP per capita; ln GDP per capita squared); the simple Huntingtonian fact of whether a country is Muslim country, to be measured by the Organization of Islamic Conference Membership or by Muslim population share (Nationmaster); UNDP data on the simple geographical fact of population density (based on the CIA’s World Factbook); UNDP data on public education expenditure per GDP; and the UNDP education index, combining the enrolment rates at the primary, secondary, and tertiary education level. UNDP figures on military expenditures per GDP are also taken into account and the openly available CIA data on military personnel rate, which are key variables of contemporary political science international relations theory and peace research. This analysis also shows the theoretical and practical (political) potential of the following drivers of development, which are somewhat a “terra incognita Australis” in the hitherto existing macro-sociological debate, like migration and European (Monetary) Union membership.

The choice of a country to be included in the final analysis (175 countries) was determined by the availability of fairly good data series for these independent variables (if not mentioned otherwise, UNDP data for the middle of the first decade of the new millennium). In the final regressions, the “listwise deltion of missing values” routine is applied. The statistical design of this study is thus based on the usual, SPSS-PAWS XVIII ordinary least square standard regression of the “kitchen sink type” (Durlauf et al., 2008) of economic growth and economic, social, and political performance in the research tradition of Barro, 2003. The term “kitchen sink regression,” commonly used in econometrics of economic growth, was reintroduced in more recent standard social science journal vocabulary in Laver and Shepsle, 1999. Prior stepwise regression procedures selected the significant among the total list of 26 available predictors.

Surveying the vast econometric literature on the subject of the possible drivers and bottlenecks of development of a given country, one also finds support for the inclusion of geographic and demographic variables in the comparative analysis of development success or failure (Ades and Glaeser, 1999; Alesina and La Ferrara, 2005; Barro and Sala-i-Martin, 2003; Barro 1991, 1996, 1998; Bloom and Sachs, 1998; Dowrick and Quiggin, 1997; Easterly and Levine 1997; Frankel and Romer, 1999; Gallup et al., 1999; Grier and Tullock, 1989; Hall and Jones, 1999; Kamarck, 1976; Kormendi and Meguire, 1985; Levine and Renelt, 1992; Mankiw et al. 1992; Rodriguez and Rodrik, 2001).

It should be mentioned that, for Barro regression, a number of assumptions are necessary. These include among others that savings rates for human and physical capital are constant, production is Cobb-Douglas in physical and human capital, the economy is sufficiently close to the steady state, all countries have the same level of growth, and the log of production is linear in all of its shifters. In
addition, to support the last assumption, one should conduct misspecification test which is conducted in this study and the set of chose models results presented.

4. THE MAIN RESULTS: BEYOND THE PRO-GLOBALIST ENVIRONMENT APPROACH

The results of the standard ordinary least squares multiple regression analyses are presented. The regression results, presented in the Appendix 1 of this work, present the best available choice of variables from both the theoretical and statistical perspective. In testing the implications of the competing paradigms, one arrives at the following list of multiple regressions with very significant statistical results.

Hence, let us now see the results in detail. In accordance with neoliberal approaches, and in discord with the mainstream of globalization critical research, economic freedom has a significant positive impact on indicators of the environment. The environmental variable, affected by economic freedom in a good direction, is carbon emissions per GDP.

The next analysis deals with the impact of world economic openness on the main indicators of the environment. Again, it emerges that the impact of liberal policies - just as in the case above - on the quality of environmental policy is not necessarily and generally negative. In the world system, some of the most persistent sinners in terms of CO₂ and SO₂ output, poisoning rivers, and woodland were the communist dictatorships which ruled East-Central Europe until 1989/90. Thus, it is no surprise that world economic openness does not increase, but decreases - ceteris paribus - CO₂ emissions per capita.

The significant influence of comparative price levels on the chosen indicators here is equally clear. Neoliberal theories start from the assumption that low comparative price levels will be an advantage for the development process, and high comparative price levels will impede the development trajectory. The empirical results confirm the fact that a liberal framework does not necessarily impede a good ecological performance. It can be shown that high comparative price levels indeed lead necessarily toward a higher involvement in the net trade of ecological footprint gha per person.

However, the main thrust of the serious apprehensions of globalization critical research is fully vindicated by the significant effects of the foreign savings rate. High foreign savings ARE indeed a driver of global footprint are a blockade against a satisfactory Happy Planet Index (HPI) performance.

The NIDL-model, featured in the critical theories of globalization since the 1970s, most prominently in the works of Froebel et al., and which best can be measured by the indicator FPZ employment as percentage of total population, is one of the prime drivers of high CO₂ per capita emissions.

MNC penetration, the master variable of most quantitative dependency theories, blocks EPI index and several other socially important processes.

<table>
<thead>
<tr>
<th>MNC PEN - stock of inward FDI per GDP</th>
<th>Quintile share income difference between richest and poorest 20%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infant mortality 2005</td>
<td>0.160 0.000</td>
</tr>
<tr>
<td>Democracy measure</td>
<td>−0.147 0.011</td>
</tr>
<tr>
<td>Environmental performance index</td>
<td>−0.113 0.005</td>
</tr>
<tr>
<td>Rule of law</td>
<td>−0.090 0.168</td>
</tr>
</tbody>
</table>

Worker remittances have a significant positive effect on the HPI and happy life years. To be able to compare the results for worker remittances with the other migration policy variables, one would have to multiply the results by a factor of −1 to make them comparable with the results about inward migration. One should have to keep in mind, though, that the indicator does not measure net worker remittances, but only worker remittances accruing to the economy of a given country, exporting labour to the world economy. While high worker remittance ratios are very typical for migrant workforce exporting countries, the migration recipient countries typically will have very low numerical values on this indicator. However, also, poor countries not substantially integrated at all into the sending and receiving of guest workers also have low numerical values on this indicator. It can be assumed that the export of labor to the world economy indeed has beneficial effects on life quality (HPI, happy life years). One can also assume that the import of labor to the world economy has - ceteris paribus - detrimental effects on life quality (HPI, happy life years).

The consensus of a large and ever-growing tradition of research would tend to see the effects of international migration on the recipient countries in very positive terms, the political noise from migra-phobic politicians to the contrary. However, not all of the optimistic forecasts of this liberal school of thought can be maintained empirically or at least on a 1:1 basis. Why should the globalization of
three freedoms - capital, goods, and services - be so socially and environmentally destructive in its consequences - as the globalization critical public in Western countries thinks, while freedom number four - labour - should have only positive effects, fully described by neoliberal economics? It was already hinted above at the fact that one can assume from the effects of worker remittances that the import of labor to the world economy has - ceteris paribus - detrimental effects on life quality (HPI, happy life years).

Furthermore, the percentage of the population with what today is called an “immigration background” has - ceteris paribus - a negative effect on some other key indicators of the environment. Immigration, and all the transport activities it causes, increases without question the CO₂ output of a given society, and it also increases the ratio of carbon emissions per GDP.

However, there are not only clear-cut detrimental effects. Furthermore, there are positive ones. Interestingly enough, a large share of people with migration background per total population also is significantly associated with a lower number of people per million inhabitants 1980–2000 killed by natural disasters per year, but this ratio might also reflect past migration patterns from disaster-prone regions to safer places with less disasters over the earlier decades, reflected in higher ratios of people with migration background per total population decades later.

The UNDP education index as the chosen predictor for the long-standing UNDP human capital propelled development approach has the predicted significant and beneficial effects on:

- EPI
- ln (number of people per mill inhabitants 1980–2000 killed by natural disasters per year+1) (reduction of disaster risk).

The significant effects of military expenditures per GDP on the environment are rather limited in comparison to the other drivers and bottlenecks of international development, under investigation here. They significantly diminish the number of happy life years, indicating a ceteris paribus negative trade-off not with life expectancy, but with life quality which is measured by the happy life years indicator. The burden of the military effort thus has a limited negative effect on life quality.

The research results suggest that - ceteris paribus - high military personnel rates are a bottleneck of the environmental performance, as measured by the Yale/Columbia EPI index.

### Table 1: The counter perspective of the Kalecki–Steindl paradigm, compared to the current global neoliberal agenda

<table>
<thead>
<tr>
<th>Differences in growth strategies</th>
<th>Current mainstream on growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steindl–Kaleckian growth policy</td>
<td>Price stability and budget consolidation as main political concerns</td>
</tr>
<tr>
<td>Full employment as main political concerns</td>
<td>Supply as growth driver</td>
</tr>
<tr>
<td>Demand as growth driver</td>
<td>Higher labor market flexibility to raise economic growth</td>
</tr>
<tr>
<td>Higher effective demand to raise employment</td>
<td>Deregulation and privatization</td>
</tr>
<tr>
<td>Technology and educational policy</td>
<td>Higher savings (for investment)</td>
</tr>
<tr>
<td>Lower household savings</td>
<td>Falling wage share (real unit labor costs)</td>
</tr>
<tr>
<td>Stable or rising wage share</td>
<td>No active anticyclical policy (irrelevant for growth path)</td>
</tr>
<tr>
<td>Anticyclical policy (cycle and trend have the same determinants)</td>
<td>Decline and restructuring of the public sector (efficiency)</td>
</tr>
<tr>
<td>Rise of public sector promotes growth (through effective demand)</td>
<td>International tax competition</td>
</tr>
<tr>
<td>Tax coordination</td>
<td>International competition (location)</td>
</tr>
<tr>
<td>International cooperation</td>
<td></td>
</tr>
</tbody>
</table>

Source: Guger et al., 2004

### Table 2: The final results from multiple regression analysis. The properties of the statistical investigations

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>Adjusted R²</th>
<th>df</th>
<th>F</th>
<th>Error prob</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global footprint</td>
<td>81.200</td>
<td>135</td>
<td>117.592</td>
<td>0.000</td>
</tr>
<tr>
<td>Environmental performance index</td>
<td>78.900</td>
<td>140</td>
<td>88.259</td>
<td>0.000</td>
</tr>
<tr>
<td>Happy life years</td>
<td>77.100</td>
<td>102</td>
<td>86.653</td>
<td>0.000</td>
</tr>
<tr>
<td>CO₂ per capita</td>
<td>72.700</td>
<td>159</td>
<td>71.594</td>
<td>0.000</td>
</tr>
<tr>
<td>Avoiding net trade of ecological footprint gha per person</td>
<td>40.900</td>
<td>138</td>
<td>20.111</td>
<td>0.000</td>
</tr>
<tr>
<td>Happy planet index</td>
<td>38.000</td>
<td>119</td>
<td>19.217</td>
<td>0.000</td>
</tr>
<tr>
<td>Carbon emissions per million US dollars GDP</td>
<td>35.000</td>
<td>144</td>
<td>16.535</td>
<td>0.000</td>
</tr>
<tr>
<td>ln (number of people per mill inhabitants 1980–2000 killed by natural disasters per year+1)</td>
<td>14.400</td>
<td>159</td>
<td>7.713</td>
<td>0.000</td>
</tr>
</tbody>
</table>
The best single measure on the control, which women exercise over the structures of national government, arguably is the indicator “% women in government, all levels,” which goes much beyond the ministerial level and looks at different layers of government, i.e., the top political and administrative sphere, where the real decisions on the day-to-day running of a given country are being taken. It is the globally leading indicator of established feminist power. However, there is also a darker side to the whole story, although the effects are only significant at the 7.4% and the 5.2% level. Ceteris paribus, it holds that structures, where “real existing feminism” plays an important role, are tending toward a higher involvement in the international trade of ecological footprint, the most visible sign of globalization, affecting the environment either as net exporters or net importers of ecological footprint. The result indicates that real existing, established feminist power - under the conditions of “real existing globalization” - has not come to terms positively with all the environmental indicators under scrutiny here.

The empirical investigations also show that European Union and/or European Monetary Union membership have rather small beneficial effects. There are only two significant positive effects to be reported in this context, and both concern a comparable dimension of environmental policy. The member countries of the European Monetary Union are good at reducing ecological footprint. Similarly, years of EU membership coincides with avoiding net trade of ecological footprint.

Now, it is time to look closer at the significant effects of the geographical, demographical, and historical determinants of development performance, which cannot be influenced by short-term or, in many cases, even long-term actions of governments and which have to be interpreted as “givens,” which a country faces today.

Let us start with the effects of absolute latitude, a variable which often appears in the econometric literature on drivers and bottlenecks of development performance. However, absolute latitude is outside the domain of interest of the mainstream of empirical dependency and world-systems research fields. Predictably, and due to climatic reasons, latitude has a very strong and significant effect on carbon emissions per million US dollars GDP and has a considerable negative effect on life satisfaction.

Population density seems to affect the ecological costs of infrastructure and significantly reduces CO₂ emissions per capita and global footprint.

The percentage share of a given country in current world population today, and hence, population size has an independent and ceteris paribus negative development effect on the EPI.

The empirical results also suggest a new perspective on the curve-linear relationships between development level and environmental development performance. Let us clearly distinguish here between the old “Kuznets hypothesis” of first deteriorating, and then improving income inequalities, and the “Matthews effect” of rising, and then shrinking (economic) growth rates. In this research, one could establish that, after taking care of the direction of the indicators, there is a wide array of first improving and then deteriorating environmental performances. They all concern the environment and the health/basic human needs dimensions:

- Avoiding CO₂ per capita
- Avoiding global footprint
- Avoiding net trade of ecological footprint gha per person
- EPI
- HPI.

The pessimistic essence of the Kuznets curve with rapidly increasing societal problems and very deficient development performances at middle stages of development holds for the following phenomena of the ecological efficiency of the economy and avoiding disaster risk. All these effects suggest that “things get worse before they get better.”

- Avoiding carbon emissions per million US dollars GDP
- Avoiding ln (number of people per mill inhabitants 1980-2000 killed by natural disasters per year+1)

The following variables yield no significant effects for the globalization critical paradigm of Bornschier, an important control variable was MNC headquarter status. However, it has no significant effect on any of the environmental variables. Increases in MNC penetration over time had no significant effect on the environment. Net international migration rates, 2005–2010, which are a typical migration flow measure, do not affect significantly any of the environment development indicators. Furthermore, the ceteris paribus effects of membership in the Islamic Conference and Muslim population shares cannot be reduced to a simplistic reasoning. They do not affect any of the chosen environmental indicators in a significant way. Furthermore, the share of public education expenditures per GDP has no significant effects on any of the environmental indicators. Annual population growth has no significant effect on any of the environmental development indicators.
5. CONCLUSIONS

The empirical investigations showed that - per se - European Union and/or European Monetary Union membership have, by global comparison, rather small beneficial effects on the environmental situation. There are only two significant positive effects to be reported in this context, and both concern a comparable dimension of environmental policy. The member countries of the European Monetary Union are good at reducing ecological footprint. Similarly, years of EU-membership coincide with avoiding net trade of ecological footprint

Moreover, not all liberal approaches to environmental policies are falsified. In accordance with neoliberal approaches, and in discord with the mainstream of globalization critical research, Economic Freedom has a significant positive impact on indicators of the environment. It also emerges that world economic openness does not increase but decrease - ceteris paribus - CO₂ emissions per capita. The significant influence of lowering comparative price levels, i.e., the globalization of services, on the chosen indicators is equally clear. The empirical results confirm the fact that a liberal framework does not necessarily impede a good ecological performance. It can be shown that high comparative price levels indeed lead necessarily toward a higher involvement in the net trade of ecological footprint gha per person. Reducing the net trade of ecological footprint gha per person is intrinsically linked to the globalization of services.

What are then the effects of the globalization of goods, labor, and capital on the environment? Only a part of the main thrust of globalization critical research is fully vindicated by the significant effects of the foreign savings rate. High foreign savings, and hence, a reliance on foreign sources of savings are indeed a driver of global footprint and a blockade against a satisfactory HPI performance. The NIDL model is one of the prime drivers of high CO₂ per capita emissions. MNC penetration blocks environmental performance. Based on the findings here, European policy-making finally should dare to take the globalization critical organizations of "civil society" seriously (Brand, 2005; Brand and Raza, 2003; Brand and Demirovic, 2000; Brand and Demirovic, 2001, Görg et al., 2017).

This research in similarity with many other researches based on secondary data suffers from a number of limitations. Attempt is made to propose remedies for future research.

Many of the composite indicators such as sustainable development index, EPI, ecological footprint index, carbon emissions, happy life years, and HPI are all continuously improve accounting for more and important dimensions. To remedy the problem, the quality and consistency of the data over time and their interrelationship should be further explored. This combined with systematic model specification, and testing and use of robust estimation methods should help to obtain consistent, unbiased, and efficient estimates of the effects of interest.

REFERENCES


APPENDIX 1

Multiple regressions - the dependency model, tested against feminist, demographic, neoliberal, geographic, cultural, peace research, human capital policy predictors, migration theories, and integration theories.

Predictors (pre-selection of the significant predictors by prior selection, using stepwise regression)

- % women in government, all levels
- % world population
- 2000 economic freedom score
- Absolute latitude
- Annual population growth rate (1975–2005%)
- Comparative price levels (US=1.00)
- Foreign savings rate
- Free production zones (FPZ employment as % of total population
- ln GDP per capita
- ln GDP per capita squared
- Membership in the Islamic Conference
- Military expenditures per GDP
- Military personnel rate ln (MPR+1)
- MNC outward investments (stock) per GDP
- MNC PEN - stock of Inward FDI per GDP
- MNC PEN: DYN MNC PEN 1995–2005
- Openness Index, 1990 (export-share per GDP + import-share per GDP).
- Population density
- Public education expenditure per GNP
- UNDP education index
- Worker remittance inflows as % of GDP
- Immigration - Share of population 2005 (%)
- Muslim population share per total population
- Net international migration rate, 2005–2010
- Years of membership in the EU, 2010
- Years of membership in EMU, 2010

The reported equations were chosen from the following dependent variables:

- Ecological footprint (g ha/cap)
- Environmental performance index (epi)
- Happy life years
- Happy planet index (HPI)
- Avoiding net trade of ecological footprint gha per person
- ln (number of people per mill inhabitants 1980–2000 killed by natural disasters per year+1)
- Carbon emissions per million US dollars GDP
- Carbon emissions per capita.
### Environmental performance index (EPI)

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>Results from stepwise regression</th>
<th>Statistical properties</th>
<th>Statistical properties</th>
<th>Statistical properties</th>
<th>Statistical properties</th>
<th>Development dimension</th>
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<tr>
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<td></td>
<td>B</td>
<td>Std error</td>
<td>Beta</td>
<td>t value</td>
<td>Error prob</td>
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<td>Environmental performance index (EPI)</td>
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<td>Beta</td>
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<tr>
<td>% world population</td>
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<td>−100</td>
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<td>In GDP per capita</td>
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<tr>
<td>In GDP per capita squared</td>
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<td>−1.750</td>
<td>−2.898</td>
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<tr>
<td>Military personnel rate ln (MPR + 1)</td>
<td>−3.298</td>
<td>0.806</td>
<td>−0.174</td>
<td>−4.091</td>
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<td>MNC PEN - stock of Inward FDI per GDP UNDP education index</td>
<td>−0.094</td>
<td>0.033</td>
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<td>−2.871</td>
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<tr>
<td>UNDP education index</td>
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#### Memorandum item: Statistical properties of the equation

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### Global footprint

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<th>Statistical properties</th>
<th>Statistical properties</th>
<th>Statistical properties</th>
<th>Development dimension</th>
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<td>Global footprint</td>
<td>Independent variable</td>
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<td>Std. error</td>
<td>Beta</td>
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<td>In GDP per capita</td>
<td>−8.365</td>
<td>1.065</td>
<td>−4.870</td>
<td>−7.851</td>
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<td>In GDP per capita squared</td>
<td>0.580</td>
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<td>0.000</td>
<td>−0.089</td>
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<td>Years of membership in EMU, 2010</td>
<td>−0.128</td>
<td>0.042</td>
<td>−0.141</td>
<td>−3.037</td>
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#### Memorandum item: Statistical properties of the equation

<table>
<thead>
<tr>
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### In (number of people per mill inhabitants 1980-2000 killed by natural disasters per year+1)

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<tr>
<th>Dependent variable</th>
<th>Results from stepwise regression</th>
<th>Statistical properties</th>
<th>Statistical properties</th>
<th>Statistical properties</th>
<th>Statistical properties</th>
<th>Development dimension</th>
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<td>Beta</td>
<td>t-value</td>
<td>Error prob</td>
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<td>In (number of people per mill inhabitants 1980-2000 killed by natural disasters per year+1)</td>
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<td>Beta</td>
<td>t-value</td>
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<td>In GDP per capita</td>
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<td>1.287</td>
<td>3.751</td>
<td>3.312</td>
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<tr>
<td>In GDP per capita squared</td>
<td>−0.247</td>
<td>0.074</td>
<td>−3.741</td>
<td>−3.355</td>
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<td>UNDP education index</td>
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<td>0.839</td>
<td>−0.289</td>
<td>−2.397</td>
<td>0.018</td>
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<tr>
<td>Immigration - Share of population 2005 (%)</td>
<td>−0.018</td>
<td>0.012</td>
<td>−0.124</td>
<td>−1.497</td>
<td>0.136</td>
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#### Memorandum item: Statistical properties of the equation

<table>
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<td><strong>Std. error</strong></td>
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</tr>
<tr>
<td>Constant</td>
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<td>32.170</td>
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<td>FPZ (free production zones) employment as % of total population</td>
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<td>−9.438</td>
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<td>0.168</td>
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<tr>
<td>In GDP per capita squared</td>
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<td>−0.020</td>
<td>0.006</td>
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<tr>
<td>Openness-Index, 1990 (export-share per GDP+import-share per GDP) population density</td>
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<td>Immigration - Share of population 2005 (%)</td>
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**Memorandum item: Statistical properties of the equation**

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<table>
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<th><strong>Carbon emissions per million US dollars GDP</strong></th>
<th><strong>Independent variable</strong></th>
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<th><strong>Std. error</strong></th>
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<td>−0.236</td>
<td>−2.436</td>
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<td>Absolute latitude</td>
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<td>0.000</td>
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<tr>
<td>In GDP per capita</td>
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<td>1792.705</td>
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<td>5.516</td>
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<td>In GDP per capita squared</td>
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<td>−111.407</td>
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<td>−5.802</td>
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**Memorandum item: Statistical properties of the equation**

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<table>
<thead>
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<th><strong>Avoiding net trade of ecological footprint gha per person</strong></th>
<th><strong>Independent variable</strong></th>
<th><strong>B</strong></th>
<th><strong>Std. error</strong></th>
<th><strong>Beta</strong></th>
<th><strong>t-value</strong></th>
<th><strong>Error prob</strong></th>
<th><strong>Global ecological justice</strong></th>
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<td>−2.742</td>
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<td>% women in government, all levels</td>
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<td>−0.130</td>
<td>0.072</td>
<td>−0.125</td>
<td>−1.801</td>
<td>0.074</td>
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<td>Comparative price levels (US=1.00)</td>
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<td>In GDP per capita squared</td>
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<th>t-value</th>
<th>Error prob</th>
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<tr>
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<td>Foreign savings rate</td>
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<td>-2.105</td>
<td>0.037</td>
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<td>In GDP per capita</td>
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<td>11.094</td>
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<td>In GDP per capita squared</td>
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<td>-6.908</td>
<td>-6.411</td>
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<td></td>
<td>Worker remittance inflows as % of GDP</td>
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<td>4.346</td>
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<td>119.000</td>
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<th>Beta</th>
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<td>In GDP per capita</td>
<td>19.100</td>
<td>8.451</td>
<td>2.260</td>
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<td></td>
<td>In GDP per capita squared</td>
<td>-0.460</td>
<td>0.490</td>
<td>-0.938</td>
<td>0.350</td>
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<td></td>
<td>Military expenditures per GDP</td>
<td>-0.754</td>
<td>0.318</td>
<td>-0.113</td>
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<td>Worker remittance inflows as % of GDP</td>
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<tr>
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<td>77.100</td>
<td>102.000</td>
<td>86.653</td>
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</table>
1. INTRODUCTION

Editorials, known as the voice of newspaper, are a public discourse that communicate with a mass audience and play an obvious role in the determining and shifting of public opinion (Van Dijk, 1996). As editorials convey the official position of a newspaper on a socially crucial and current topic, they are supposed to contain a significant persuasive value (Sheldon, 2009). Hence, to be able to effectively express their ideas, editors should take extreme care in the use of their strategies in convincing the audiences. Although the editorial is an explicit case of persuasive writing and it sets standards for written persuasion for a specific purpose (Ansary and Babai, 2005), expecting the audience to accept the presented ideas very easily is not rational. Hence, a careful description of the editorial's structure, style, and use of lexicogrammatical features such as interactional metadiscourse markers play an essential role in achieving the communicative purpose of this persuasive genre. According to Williams (1981), argumentative texts like editorials by the use of interactional metadiscourse markers strengthen the relationship between the writer and the reader. Among the interactional metadiscourse markers (i.e., hedges, boosters, attitude markers, self-mentions and engagement markers), hedges and boosters are essential features for writers to clarify their epistemic stance and position related to the writer–reader interaction. Hedges mark the unwillingness of the writer to present propositional information unconditionally and certainly (Hyland, 2004). Through presenting information as an opinion rather than a fact, they emphasize the subjectivity of a position and therefore open that position to negotiation. On the other hand, boosters are considered as features that express the
writer’s strong confidence for a claim (Holmes, 1982) and assurance and affirmation of a proposition confidently (Abdi et al., 2010).

The conventions and patterns of the genre and the writers are writing in and affect different aspects of interaction. Therefore, comparing the style and structure of editorials and their use of hedges and boosters written by English and non-English writers from different cultures brings about useful understandings of the differences in their rhetorical patterning and persuading strategies.

Despite the wide-ranging discourses that have been under study, editorials who attract a very wide readership have not been given enough attention in terms of using hedges and boosters in their rhetorical structure. Studies at the microlevel have been limited to research such as those by Le (2004) who investigated some interactional markers such as evidentials, person markers, and relational markers in newspaper editorials and by Khabbazi-Oskouei (2012), Kuh and Mojood (2014), and Fu and Hyland (2014) who did an investigation of all interactional metadiscourse markers in magazine, newspaper editorials, and opinion texts, respectively. All these studies found that, in English editorials and opinion texts, the frequency of the use of hedges is higher than boosters. Although Fu and Hyland (2014) conducted a qualitative analysis, the classification done for hedges is limited to verbs, adverbs, and modals. Moreover, it has not prepared a clear classification for categories of boosters, and again, it seems to be a neglected persuasive strategy. Hence, it raises the need for a combination of qualitative and quantitative analysis of both hedges and boosters deeply.

So far, only Tahiririan and Shahzamani (2009) and Trajkova (2011) have investigated specifically the use of hedges in the editorials but not in connection with the macrolevel study or in their rhetorical moves and steps. In the former study, they used Varttala’s (2001) framework that considered all hedges as a subcategory of modal auxiliaries and the framework is not very comprehensive; hence, the findings are not in depth. On the other hand, Trajkova (2011) compared the use of hedges in only 9 English (American) and 9 Macedonian editorials which are not an enough data to generalize the findings. The findings revealed the use of more hedges in the American editorials than the Macedonian ones. Moreover, his framework was only including modal lexical verbs and modal epistemic verbs. In addition, he has considered must, will, can, and ought to as a hedge while they are showing tentativeness of the writer.

Another comparative study by Tafaroji et al. (2015) revealed the use of more boosters than hedges in both American and Persian newspaper articles. Reviewing the literature reveals that boosters have been completely neglected, so it inspires more investigation on the use of hedges and boosters in different rhetorical moves and steps of editorials. Finally, a comparative study of the structure of newspaper from two different cultures is scarce. The current study thus aims to fill the gap in research and compare American and Malaysian editorials in terms of their style and conventions of hedging and boosting statements which have not been investigated before.

2. DATA ANALYSIS AND METHODOLOGY

2.1. Data
To achieve the objectives of this study, the required data in the form of newspaper editorials that is 120 from each of the New York Times (NYT) and New Straits Times (NST) were selected. To avoid personal biases and the researcher’s influence on the data selection, an online number generator was used to randomly select the data from the websites of the NYT (i.e., www.nytimes.com) and NST (i.e., www.nst.com.my). To have a better insight of the NYT and NST, the background of each newspaper is provided in the next section.

The first step of the analysis was to read the 240 editorials from both the NYT and NST for move identification and step labeling. The second step was exploring the use of hedges and boosters in different rhetorical moves and steps which was done manually because it allows a more in-depth analysis of texts (Hyland, 1998). Moreover, as the analysis was function-based and making a distinction between propositional and non-propositional meanings of the text needed the context, manual analysis was more efficient.

2.2. Background of the Newspapers
The NYT is one of the largest American daily newspapers, which covers general news about various issues in society not a specific one such as economy or business. The NYT avoids sensationalism and follows a restrained and impartial style in reporting the news. The newspaper believes in objective presentation of news and attempts to maintain ethics of journalistic writing (The New York Times Company, 2008). It is also a popular newspaper among the authorities within the USA and around the globe. Therefore, the propositions put forth in the editorials could have significant consequences in society by making the authorities think critically of the issue raised.
NST is a mainstream, influential, and authoritative English newspaper published in Malaysia. NST not only addresses issues pertaining to the government and corporate sectors but it is also the choice of intellectuals, young professionals, and students and maybe the future leaders of united modern Malaysia (NSTP, 2013). The NST is known as a right-wing newspaper that has close ties with the government and favors their policies (Pang, 2006). According to Malaysia Annual Report, there is a regular check of the racially sensitive issues by the government and pressure on media which usually leads them to self-censor or withhold from voicing controversial issues (Reporters without Borders, 2007).

2.3. Analytical Framework
As the study is conducted at both macro- and micro-levels, for the macro level (generic structure), Zarza and Tan’s (2016) framework is deployed as it is more detailed, comprehensive, and robust (including both moves and steps) in comparison to those available in the literature (Bhatia, 1993; Ansary and Babaii, 2005). As shown in Table 1, the generic structure of editorials involves four obligatory moves’ headline, presenting the case, justifying or refuting the events, and articulating the position that is used to persuade the readers. At the lower level, these moves include 15 steps to pave the way for each move to easily achieve their communicative purpose which is persuasion.

In addition, for the analysis of the data at the microlevel, the researcher conducted a pilot study on 60 editorials of NYT and NST, checked the available frameworks in the literature (Dahl, 2004; Vande Kopple, 1985; Crismore et al. 1993; Hyland, 2005), and prepared an adapted framework to the data of the current study (Krippendorff, 2004). Exploring all the previous studies revealed that although Hyland’s (2005) model is a more theoretically robust one, none of them are providing a detailed categorization of different functions of hedges and boosters specifically. Therefore, to achieve the objectives of this study, a more comprehensive analytical framework on hedges and boosters through refining, revising, and adjusting the existing frameworks was prepared. As a result of the pilot study, a theory-driven and data-driven framework for analysis of the whole data was drawn up [Tables 2 and 3].

Finally, to elevate the reliability of the coding process, 20% of the data was analyzed independently by a PhD holder of the English language specialized in discourse analysis. Wherever there were any discrepancies between the findings of the coders, a consensus on the coding and categorizations was reached. Moreover, a three-session interview with an ex editor of the NST increased the reliability of the findings and improved the codes and categories.

3. RESULTS AND DISCUSSION
This section will represent findings related to the use of hedges and boosters mapped onto different rhetorical moves and steps and their rhetorical and persuasive functions.

3.1. The Use of Hedges and Boosters in NYT and NST Editorials
The exploration of the data revealed that there is a common pattern in both the NYT and NST as they similarly use more hedges (NYT = 20.23 and NST = 20.49) than boosters (NYT = 12.46 and NST = 11.28) in their editorials [Table 4]. However, it was also found that the use of hedges in the NYT editorials (i.e., 20.23 per thousand word [ptw]) was more frequent than their Malaysian counterpart that had a frequency of 20.49 ptw. On the other hand, boosters occurred more frequently in the NYT (12.46 ptw) than in the NST (11.28 ptw). This finding is in line with that of Kuhi and Mojood (2014), Khabbaz-I-Oskouei (2011), and Fu and Hyland (2014) study that found hedges more frequent than boosters. Using more hedges possibly be attributed to the convention of the English editorial genre to be more tentative in expressing their ideas and not to express their authority explicitly (Kuhi and Mojood, 2014).

3.2. Hedges and Boosters Mapped Onto Move Structure
The findings of the study revealed that, in the NYT and NST editorials, there were some similarities and differences in the occurrence of hedges and boosters in their various moves. This section will comment on the use of these persuasive strategies with significant frequencies in each rhetorical move and its related steps.

<table>
<thead>
<tr>
<th>Table 1: Framework of moves and steps in editorials</th>
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<tbody>
<tr>
<td><strong>Moves</strong></td>
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<tr>
<td><strong>Steps</strong></td>
</tr>
<tr>
<td>M1: Headline</td>
</tr>
<tr>
<td>S1: Addressing issue/problem</td>
</tr>
<tr>
<td>S2: Elaborating issue</td>
</tr>
<tr>
<td>M2: Presenting the case/problem</td>
</tr>
<tr>
<td>S3: Mentioning initiating event</td>
</tr>
<tr>
<td>S4: Providing background information</td>
</tr>
<tr>
<td>S5: Presenting standpoint</td>
</tr>
<tr>
<td>M3: Justifying or refuting events</td>
</tr>
<tr>
<td>S1: Explaining</td>
</tr>
<tr>
<td>S2: Contextualizing argumentation</td>
</tr>
<tr>
<td>S3: Reasoning</td>
</tr>
<tr>
<td>M4: Articulating a position</td>
</tr>
<tr>
<td>S4: Expressing solution</td>
</tr>
<tr>
<td>S5: Expressing expectation</td>
</tr>
</tbody>
</table>
Table 2: Framework of analyzing hedges in editorials

<table>
<thead>
<tr>
<th>Function</th>
<th>Example(s) of forms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modulating impact of utterances</td>
<td>Approximators</td>
</tr>
<tr>
<td>Enhancing epistemic commitment</td>
<td>For example, “Rarely,” “barely,” “almost,” and “nearly”</td>
</tr>
<tr>
<td>Withdrawing epistemic commitment:</td>
<td>i) Epistemic markers</td>
</tr>
<tr>
<td>Decreasing the writer’s commitment to the actions or what is said and avoiding acceptance of the responsibility for what is written</td>
<td>For example, “Appears,” “seem,” “assume,” “indicate,” “possibility,” “possible,” and “seemingly”</td>
</tr>
<tr>
<td>ii) Modal auxiliary</td>
<td>For example, “Could,” “may,” “might,” “would,” and “should”</td>
</tr>
<tr>
<td>iii) Phrases indicating uncertainty</td>
<td>For example, “It is unclear,” “it is not clear,” and “with no certainty”</td>
</tr>
<tr>
<td>Subject avoiding</td>
<td>i) Passive structure</td>
</tr>
<tr>
<td>Not mentioning the subject or agent and hiding the person in charge of the action</td>
<td>For example, “Was indicated” and “could be sentenced”</td>
</tr>
<tr>
<td>ii) Impersonal pronoun</td>
<td>For example, “it” and “one”</td>
</tr>
<tr>
<td>iii) Clausal subject</td>
<td>“It is hardly surprising that…”</td>
</tr>
<tr>
<td>“It is then interesting that…”</td>
<td></td>
</tr>
<tr>
<td>Seeking solidarity</td>
<td>i) Rhetoric question</td>
</tr>
<tr>
<td>Providing solidarity with the reader in a way that hides itself behind them or puts himself at the same level or makes them think of themselves but implicitly engage them to be in line with his point of view</td>
<td>“Is there then not a need to discipline those responsible for sloppiness in carrying out their duty; are not escaped criminals a threat to public safety?”</td>
</tr>
<tr>
<td>Expressing counter expectation</td>
<td>Concession linking words</td>
</tr>
<tr>
<td>Showing alternatives or exchange for solidarity and conflict</td>
<td>“But,” “although,” “though,” and “despite”</td>
</tr>
<tr>
<td>“The bureau cannot undo the past, but strong rules could at least help to ensure that the past is not repeated” (NYT)</td>
<td>“If” and “Unless”</td>
</tr>
<tr>
<td>“If the African Union force, and especially Kenyan and Uganda troops, left Sumalia any time soon, the gains could all be lost”</td>
<td></td>
</tr>
<tr>
<td>Expressing hypothetical situation</td>
<td>i) Rhetoric question</td>
</tr>
<tr>
<td>Expressing the conditions under which an event may or may not happen</td>
<td>“Is there then not a need to discipline those responsible for sloppiness in carrying out their duty; are not escaped criminals a threat to public safety?”</td>
</tr>
<tr>
<td></td>
<td>Concession linking words</td>
</tr>
<tr>
<td></td>
<td>“But,” “although,” “though,” and “despite”</td>
</tr>
<tr>
<td></td>
<td>“The bureau cannot undo the past, but strong rules could at least help to ensure that the past is not repeated” (NYT)</td>
</tr>
<tr>
<td></td>
<td>“If” and “Unless”</td>
</tr>
<tr>
<td></td>
<td>“If the African Union force, and especially Kenyan and Uganda troops, left Sumalia any time soon, the gains could all be lost”</td>
</tr>
</tbody>
</table>

Table 3: Framework of analyzing boosters in editorials

<table>
<thead>
<tr>
<th>Function</th>
<th>Example(s) of forms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enhancing epistemic commitment</td>
<td>i) Epistemic markers</td>
</tr>
<tr>
<td>Increasing the writer’s commitment, Emphasizing the truth or certainty of what is written and accepting the responsibility for what is written</td>
<td>“obvious,” “clear,” “strongly,” “only,” “of course,” Emphatic “Yes/No” and “do/” “does”</td>
</tr>
<tr>
<td>ii) Modal auxiliary</td>
<td>For example, “must”</td>
</tr>
<tr>
<td>iii) Phrases indicating certainty</td>
<td>“There is no doubt,” “it is clear,” and “What is known is that…”</td>
</tr>
<tr>
<td>Providing evidence and strengthening credibility</td>
<td>Attribution</td>
</tr>
<tr>
<td>Referring to authority’s or some scientific researchers’ statement to show the credibility and reliability of its statements</td>
<td>“According to global Muslim travel consultancy Crescent rating’s Halal-Friendly Travel Ranking”</td>
</tr>
<tr>
<td>Seeking solidarity</td>
<td>Rapport clauses</td>
</tr>
<tr>
<td>referring to the hearer’s knowledge, or assumed shared background information to provide a solidarity with the reader and give strength to its statement</td>
<td>For example, “it is well understood…”</td>
</tr>
<tr>
<td></td>
<td>“Like many people, we had questions…”</td>
</tr>
</tbody>
</table>

Table 4: The overall frequency of the use of hedges and boosters in the NYT and NST editorials

<table>
<thead>
<tr>
<th>NYT (n=60005 words)</th>
<th>Number of hedges/boosters</th>
<th>Freq. (ptw)</th>
<th>NST (n=63334 words)</th>
<th>Number of hedges/boosters</th>
<th>Frequency (ptw)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hedges</td>
<td>1214</td>
<td>20.23</td>
<td>Hedges</td>
<td>1298</td>
<td>20.49</td>
</tr>
<tr>
<td>Boosters</td>
<td>748</td>
<td>12.46</td>
<td>Boosters</td>
<td>715</td>
<td>11.28</td>
</tr>
<tr>
<td>Total</td>
<td>1962</td>
<td>32.69</td>
<td>Total</td>
<td>2013</td>
<td>31.77</td>
</tr>
</tbody>
</table>

3.3. Move 1: Headline

Headline, the first move in both the NYT and NST editorials, provides the readers with the main idea of the text as it juxtaposes the most essential points of the issue in summary. The findings revealed that this move did not include hedges and boosters. Headlines in editorial genre have a tendency to use content words, such as nouns, verbs, and adjectives while using function words such as personal pronouns and articles and particularly metadiscourse markers (hedges and boosters) is not a convention, and they are rarely found (Saxena, 2006).

1. Transforming politics (NST, October 12, 2013)
2. Haiti’s Long Road (NYT, January 1, 2013)

3.4. Move 2: Presenting the case

In Move 2, the editor presents the issue that the newspaper is interested in and argues its position by elaboration on the issue through facts and background information either directly or through the historical or the social context. The comparison of the two newspapers displayed a possible tendency of various moves to follow a common distribution pattern of hedges and boosters. In both the NYT and NST, the last ranking of the use of hedges (NYT = 21.93% and NST = 29.03%) and boosters (NYT = 20.85% and NST = 27.41%) belonged to Move 2. It could be attributed to the communicative purpose of this move that prepares readers with information about the addressed issue in the editorial. Therefore, the editor rarely attempts to persuade the reader in this move as much as the other rhetorical moves, which caused its less use of persuasive strategies such as hedges and boosters.

The rhetoric aim of Move 2 accomplishes by the use of various steps, and the distribution of hedges and booster in each of them based on their function is diverse [Table 5]. According to Hopkins and Dudley-Evans (1988), these diversities in purpose can affect the degree of using rhetorical strategies (i.e., hedges and boosters in this study) by various steps of the related move for engagement, expressing attitudes, and so on.

As demonstrated in Table 5, among the various steps of Move 2, elaborating issue in both the NYT and NST editorials includes the highest number of hedges (NYT = 7.55% and NST = 13.25%) and boosters (NYT = 8.02% and NST = 13.14%). The editor in this step provides more detailed information and enriches the editorial helping the newspaper as an informed and well-placed authority to persuade its readers. Therefore, it attempts to use hedges and boosters in this essential step to find that such information is credible and reliable. Furthermore, the use of figures and numerical information in this step makes the writer use approximators to save the face of the writer and readers.

(3) Some 650,000 Syrians are now registered as refugees by the United Nations or awaiting registration, an increase of almost 100,000 in the past month alone. That includes about 155,000 in Turkey, 148,000 in Lebanon, 142,000 in Jordan, 73,000 in Iraq, and 14,000 in Egypt. Thousands more are not registered. The total could reach one million this year. Many Syrians have fled because of bombings by army troops, still others because of sexual violence.

<table>
<thead>
<tr>
<th>Move</th>
<th>Steps</th>
<th>NYT</th>
<th></th>
<th>NST</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hedge Frequency</td>
<td>%</td>
<td>Booster Frequency</td>
<td>%</td>
<td>Hedge Frequency</td>
</tr>
<tr>
<td>M2: Presenting</td>
<td>M2S1: Addressing an issue/problem</td>
<td>71</td>
<td>5.7</td>
<td>36</td>
<td>4.81</td>
</tr>
<tr>
<td>the case</td>
<td>M2S2: Elaborating Issue</td>
<td>94</td>
<td>7.55</td>
<td>60</td>
<td>8.02</td>
</tr>
<tr>
<td></td>
<td>M2S3: Mentioning initiating event</td>
<td>14</td>
<td>1.13</td>
<td>8</td>
<td>1.07</td>
</tr>
<tr>
<td></td>
<td>M2S4: Providing background information</td>
<td>12</td>
<td>0.96</td>
<td>10</td>
<td>1.34</td>
</tr>
<tr>
<td></td>
<td>M2S5: Presenting standpoint</td>
<td>82</td>
<td>6.59</td>
<td>42</td>
<td>5.61</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>273</td>
<td>21.93</td>
<td>156</td>
<td>29.03</td>
</tr>
</tbody>
</table>

In excerpt 3, the NYT editor attempts to familiarize the reader with the issue completely based on statistics to show the negative effects of the dictatorial rule of Bashar al-Assad and the depth of this disaster. However, the use of statistics is modulated through the use of hedges to introduce fuzziness into the propositional content by displaying a lower accuracy of the expressed proposition (Jalilifar and Alavinia 2012).

(4) In the last three weeks, in Penang alone, five shooting incidents occurred, several of them fatal. In April, a senior Customs official was shot dead on his way to work. The case is yet to be solved. More recently, the head of an anti-crime watchdog group was shot in Seremban. He is fighting for his life. The latest incident involved the first chief executive officer of AmBank, who was gunned down in Kuala Lumpur in broad daylight, killing him and injuring his wife (M2S2) (NST, July 31, 2013).

In excerpt 4, after familiarizing the reader with the main issue of the article that is the lack of safety in Kuala Lumpur, the NST editor attempts to offer some real examples of the occurred violence. It is to prove that violence is increasing in Malaysia and leads the reader’s attention to the misery that was never a concern before. However, it uses the passive structure as a hedging strategy to not mention the agent of these issues in the society and to save the face of the people in charge.

The next step for using hedges and boosters in Move 2 belongs to presenting standpoint (hedge = 6.59% and booster = 5.61%) in the NYT. This step presents the writer’s claim and point of view with respect to the presented issue from the beginning. Being an article that is not signed by the writer (Bolivar, 1994), the editor has a tendency to support the editorial article regarding the addressed issue by presenting his/her standpoint. The editor, as illustrated in excerpt 5, presents his/her position tentatively in the format of a conditional clause. It assists the editor to decrease the level of his/her commitment and criticism on the political parties.

(5) The Election Commission (EC) promises the country a “best ever” general election (GE). Set for May 5, 2013, with April 20 nomination day, this will offer candidates the longest campaign period in recent elections. Pitting themselves one against the other, over this period, the two coalition fronts must, therefore, restrain their workers and supporters and urge them to play by the rules. [As the EC chairman makes clear there is nothing the EC can do if political parties are bent on creating chaos] (M2S5). (NST, April 12, 2013)

In excerpt 6, the editor in addition to addressing the issue of Afghanistan (M2S1) shows the newspaper’s position (M2S5) that the issue is a natural thing by mentioning it “should come as no surprise.” Editors typically plan to involve both supporters and opponents in the agreement with their position using strategies that employ a degree of conventional intimacy. One way of creating this sense of solidarity is using boosters to appeal to the reader as an intelligent coplayer in a close-knit group (Hyland, 1998). Using this phrase, the writer shows the certainty through bringing about a solidarity between writer and readers in having the same idea about the lavish spending of the Central Intelligence Agency.

(6) [The news that the Central Intelligence Agency has been spending lavishly in Afghanistan should come as no surprise] (M2S1). The agency went to work in the country right after Sept. 11, 2001, and has played a dominant covert role hunting down Al Qaeda and the Taliban ever since, while the Pentagon and other agencies have pursued more transparent military and development operations costing many billions of dollars. (NYT, April 30, 2013)

In contrast, in the NST, the second position belongs to addressing issue (hedge = 8.13% and booster = 7.83%). This step indicates that there is an issue in society that needs to be addressed and discussed in detail to empower the authorities to deal with the issue.

(7) The widespread notion that the economy would pick up in the second half of 2013 was always overly optimistic (M2S1). (NYT, September 6, 2013)

In excerpt 7, “always” is an epistemic marker that plays the role of boosters and persuades readers through emphasizing the force of propositions and displaying commitment to the statement.

(8) Contextually written of thirsty sailors lost at sea, the words would become relevant if the forecasted Selangor water woes come to pass in a few years’ time. As it is, many Selangor residents have been hit by water shortages. (M2S1) (NST, February 2, 2013)

Excerpt 8 explicitly informs the reader about the problem of water shortage in Selangor which should be considered as a
crucial problem with serious social consequences. The editor deploys if conditional sentence to state the information about the issue of water with cautious and tentativeness. Using this strategy has provided a condition to save the editor’s face if the water woes do not pass in the expected time.

On the other hand, mentioning initiating event was ranked as the last step that uses hedges (0.21%) and boosters (0.14%) in the NST which is an insignificant frequency. The same ranking in the NYT belongs to the providing background information in the use of hedges (0.96%).

3.5. Move 3: Justifying or refuting events
This move argues the issue from different aspects with respect to the claim presented in Move 2 to justify or refute the event or standpoint. Overall, this move paves the way for the writer to convince the readers about their credibility. To achieve this aim, the writer provides satisfactory response to the questions and doubts of the reader. It is done through the use of hedges and boosters. As illustrated in Table 6, in both the NYT (44.82%) and NST (37.8%), Move 3 “justifying or refuting events” was the most frequently hedged move among the others. This high frequency of hedges in Move 3 was possibly due to the frequent occurrence of hedges (NYT = 31.16%, NST = 24.12%) and boosters (NYT = 24.6%, NST = 23.36%) in M3S1 [Table 6].

Explaining involves the argument of the newspaper about different aspects of the issue and discussing its pros and cons, as well as its related actions that need to be expressed persuasively. Therefore, its nature could be considered as a reason for using a high number of hedges to convince the readers to believe that its discussion and explanation are reliable and credible.

(9) On the one hand, it could be argued that if foreign workers earned as much as locals but had to spend as much, too, this might deter them from coming to Malaysia to seek employment. But this is a very naïve assumption that does not take into account that many who come to this country come from countries that offer few economic choices. But though the extras that foreign workers enjoy seemingly put locals at a disadvantage, the goal, from a macro point of view, is to make it more expensive for employers to hire foreign workers, and the increasing levy is supposed to act as a deterrent from keeping a foreigner for too long (M3S1). (NST, January 22, 2013)

In excerpt 9, the editor uses epistemic modal auxiliary “might” and “could” to express his/her uncertainty toward the truth of the proposition and decrease the commitment to the actions or what is said and to avoid the acceptance of responsibility for the judgment (Goates, 1983; Hyland 1998). In addition to modal auxiliaries, epistemic markers also withdraw the commitment and qualify the truth value of the propositional content (Catenaccio et al., 2011). Using epistemic adverbs like seemingly, the editor conveys his/her uncertainty and state of knowledge and belief concerning the information. In addition, the editor in example 9 avoids taking responsibility for what he/she claims and attempts to be objective (Buitkiené, 2008). Hiding agency in relation to the object of criticism (Blas-Arroyo, 2003) is what happens when one wants to exercise a degree of mitigation. As depicted in excerpt 9, this is possible by the use of passive structure and not mentioning exact information to save the face of the readers and the government members as the criticism maybe pointed at them.

(10) It is not clear yet whether Detroit’s officials will ultimately try to sell the collection. Michigan’s attorney general, Bill Schuette, has issued a strong opinion that the art can be sold only to acquire more art, not to retire public debt. But Bill Nowling, a spokesman for the city’s emergency manager overseeing the bankruptcy proceedings, said this week that although there

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are no specific plans to sell the art, all options “remain on the table”. (M3S1)(NYT, July 26, 2013)

As shown in excerpt 10, epistemic markers like “only” are another linguistic form of boosters that intensify a particular part of information or a specific stance regarding the issue. It is seen that editors deploy epistemic markers to emphasize the introduced speech act (Jalilifar and Alavini, 2012). The writer by the use of this linguistic form of boosters highlights specific parts of his/her utterance to make the reader easily notice its importance. In addition, in the above excerpt, modal auxiliary “will” functions as a booster as it enhances the editor’s commitment to whatever he/she claims. Moreover, in different steps, there are expressions such as “it is not clear” that play the role of hedges as they express the writer’s uncertainty. Attribution as another form of boosters is used in the example above (M3S1: Explaining) that its function will be discussed below.

As illustrated in excerpts 11 and 12, attribution mostly occurs in M3S2 contextualizing argumentation. The editors contextualize their argumentation through facts and evidences which play a pivotal role in supporting the expressed opinions in argumentative discourse to make them plausible and seem acceptable (Hulteng, 1973). As depicted in Table 6, contextualizing argumentation has the second rank in terms of the use of hedges (NYT = 9.71, NST = 4.98) and boosters (NYT = 14.05, NST = 4.62). According to Wangerin (1993), argumentative texts that do not use evidences as a support are weaker in effecting the readers than the ones with solid evidences.

(11) The Obama administration continued to block his release to anywhere but Algeria, even after Luxembourg expressed interest in resettling him. During a 2009 hearing, [Federal District Judge Ellen Segal Huvelle told government lawyers she was “appalled” at the situation. “I don’t know why in the world the only thing that the government can see here is Algeria,” she said. “I think it’s our duty to try to do something about these people down there and not just say, O.K., go to where you came from”] (M3S2). (NYT, December 6, 2013)

(12) [Malaysia, according to Prime Minister Datuk Seri Najib Razak] (M3S2) is desirous of fostering a win-win relationship with Singapore. (NST, February 20, 2013)

On the other hand, the other steps of Move 3 do not include a significant number of hedges or boosters. For instance, the frequency of hedges and boosters in comparing and contrasting in the NYT (hedge = 0.42% and booster = 0.13%) and expressing solution in both the NYT (hedge = 0.26% and booster = 0.53%) and NST (hedge = 1.4 and booster = 0.84) was not significant. They were ranked as the least dominant steps in which hedges and boosters have been realized.

3.6. Move 4: Articulating position

This move distinguishes the editorial from other newspaper genres, such as stories, as it makes the editorial a mixture of facts and opinions or stance of the newspaper regarding the issue. However, influencing the reader using non-factual and opinion statements is more difficult than stating facts (Van Eemeren et al., 2002). Therefore, it requires full commitment of the writers in articulating their position very explicitly and strongly. To this end, the editors can use specific persuasive strategies such as hedges and boosters to show their amount of commitment to their stance and position.

The examination of the data in the current study revealed that “articulating position” was ranked as the second highest move in the use of hedges (NYT = 33.25% and NST = 33.17%) [Table 7]. Moreover, the findings revealed that the NYT and NST editorials comparatively devoted approximately equal percentages of their hedges (NYT = 33.25% and NST = 33.17%) and boosters (NYT = 37.7% and NST = 37.77%) in voicing their ideas to persuade their readers. However, the NYT preferred more boosters in Move 3 justifying or refuting events to make its arguments more persuasive. In contrast, boosters in the NST were mostly occurred in Move 4 Articulating position (37.77%) in comparison with the other moves. Possibly, it implies the importance of getting agreement of the readers for the NST regarding its stance.

Moreover, analyzing each step of Move 4, as depicted in Table 7, reveals that editors of both the NYT and NST use the most number of hedges (NYT = 9.87% and NST = 10.94%) and boosters (NYT = 13.63% and NST = 13.56%) in M4S3 “Raising suggestion.” This indicates that hedges and boosters influence the NYT and NST’s readers to act in future regarding the issue in line with the newspaper’s position most effectively. However, in editorials, explicitly directing the readers toward performing a particular act may be more easily said than done. Therefore, both the NYT and NST editorials have a tendency to express their suggestions in a more persuasive and safe style using more hedges and boosters.

(13) If the water companies are lax then the government in Shah Alam must put its foot down instead of dilly-dallying over the re-nationalising issue and putting the spanner into the central government’s already approved plans. (NST, May 23, 2013)
As illustrated in excerpts 13 and 14, the NYT and NST editors have used “if” in combination with “should” and “must.” It is done to hedge their utterances and decrease the force of suggestion to save the editor’s face regarding the presented recommendation.

Moreover, the NYT editorialists employ a higher frequency of hedges (8.19%) and boosters (7.49%) in prediction than the NST (hedge = 2.67% and booster = 4.57%). In contrast, the NST uses more hedges (9.96%) and boosters (11.05%) in expressing opinion.

In excerpt 15 and 16, the NYT and NST editors express their opinions regarding the issues by the use of epistemic adjectives and adverbs such as “obvious,” “certainly,” and “indeed” to indicate certainty about their opinion (M4S1) and remove doubts. Furthermore, they consequently increase the significance of the editor’s claims and evaluation regarding the addressed issue.

In addition, in M4S4, editors use if clause to show lack of definiteness of future prediction and newspaper’s conviction about the proposed judgment. Similarly, Bonyadi (2010) found that making prediction is realized through if conditional sentences. According to Biber et al. (2002), the logical meanings of “would” mostly express the likelihood or probability of occurrence or happening of a particular action in the future time. Based on the analysis of data, it seems that “would” has less certainty and definiteness regarding the possibility of the event in contrast to “will” (Peng, 2001). Therefore, in excerpt 17 and 18, “would” has been considered as a form of hedge and “will” as a form of booster.

In excerpt 18, in addition to the use of if clause as a hedge, in the last sentence of this example, prediction has been expressed in rhetorical question form. Rhetoric questions function as a hedge because the writers establish a more dialogic interaction with the newspaper’s readers and thus
gain acceptance for their argument (Khabbazi-Oskouei, 2012).

Finally, M4S5 expressing expectation in both the NYT (hedge = 1.27% and booster = 1.08%) and NST (hedge = 1.12% and booster = 0.57%) was the step in which the least number of hedges and boosters realized.

4. CONCLUSION

To sum up, newspaper editors draw on rhetorical strategies to influence the point of view and actions of their wide readership and authorities in charge of the addressed issue. This manipulation occurs by means of various lexical and linguistic features in different newspapers taken from different countries. The findings of this study revealed that the NYT and NST editorials, in line with the previous studies (Kuhi and Mojood, 2014; Khabbazi-Oskouei, 2011; Fu and Hyland, 2014), use more hedges than boosters. However, it is also found that the NYT and NST devise their own and particular style of hedging or boosting statements. In other words, the results obtained suggest the NYT editors preferred using boosters, while in the NST, using hedges was favored. This might suggest that the Malaysian editors preferred to be more indirect in their argument and to persuade their readers through observing politeness. However, for the American editors, indirectness could indicate weakness, which is not approved of in a person with authoritative power. It can be attributed to the social status of the NYT as a newspaper that is empowered by the absolute freedom that gives it the possibility to present its opinions with confidence and in an assertive style (Zarza et al., 2015).

In addition, based on the findings, it could be implied that the communicative purpose of rhetorical moves and steps influenced the frequency that hedges and boosters have employed in each of them. Overall, the NST uses more boosters in Move 4 compared to the previous moves, and considering each step of Move 4 separately, it is revealed that they include more hedges than boosters. It indicates that the NST editorials have a tentative voice in expressing their ideas about the issue. In contrast, the NYT editorials employ more boosters in each step to show their authority and certainty regarding evaluation, attitude, and opinion about the issue. Finally, it can be mentioned that mainly those steps in each move that convey the newspaper’s position, opinion, and attitude contain a higher frequency of hedges and boosters. These metadiscourse features function as a facilitator for the interaction between the writer and the reader to have a friendly relationship. Moreover, it makes the newspaper’s ideas seem more credible and acceptable to the readers with various backgrounds.

The findings of this study could be useful in determining the writing skill syllabus or units in a writing program. Swales (1999) opined that there are “pedagogical values in sensitizing students to the rhetorical effects and the rhetorical structures that tend to recur in genre-specific texts.” The findings of this study assist ESL/EFL students to write argumentative essays and persuade readers effectively (e.g., the use of rhetoric as an art of writing and use of hedges and boosters), as there are so many similarities in their lexis, structure, and linguistic features such as modality, connectives for reasoning, and involvement strategies (So, 2005). Moreover, considering the fact that “linguistic awareness can be more effectively developed with purposeful language practice and critical analysis of a genre” (So, 2005), the outcomes of the current study could equip ESP teachers and students with the essential understanding of the conventions in the editorial discourse. Thus, in light of the findings of the current study, ESP students may be able to write persuasive editorials that are properly organized, informative and persuasive to the audience.

In addition, the composite frameworks in this study show the importance of both theory and specific data and context in providing a comprehensive framework with minimum overlaps among their categories. These classifications of hedges and boosters along with the distinction of propositional and non-propositional meanings could be useful in the analysis of various genres based on their context.

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Economic Growth of Asia-Pacific Countries - What Factors Are Important?

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ABSTRACT

This empirical study examines the determinant of economic growth among Asia-Pacific countries. While many other studies focused on specific economies with particular determinants identified from previous studies, this study expands the boundaries of countries to examine different factors that are expected to affect the economic growth in Asia-Pacific countries. Estimation results of this study are based on the analysis of a panel data for the period 1994–2011. The impact of total population, industry share of gross national income, interest rate, gross fixed capital formation, and tax rate is statistically examined to be strongly significant for the whole sample. In the case of government expenditure and trade openness, they are examined to be significant to some degree. Finally, although human capital is expected to be main driver of economic growth, the result from correlation analysis revealed that there is a high correlation between expenditure on education and health. To show the impact of human capital on economic growth in Asia-Pacific countries, the estimation with years of schooling may enhance the study instead of using expenditure on education and health.

Keywords: Asia-Pacific Economies, Economic Growth, Panel Data Analysis

1. INTRODUCTION

The economic growth engine of any nation is mainly driven by population growth, capital accumulation, and productivity increase. The latter is the most enchainig factor of the growth. Although the economic growth of developed countries has been slowing down since 1973, the Asian countries, especially South Korea, China, and India, have witnessed economic prosperity since then.

For example, the high growth rate of the South Korean economy continued since the 60s till 1997 with its per capita gross domestic product (GDP) of 10,000 USD. However, its economy encountered a monetary crisis in late 1997. As a result, its GDP has decreased by 6.7% in 1998 and around 40% of contraction in its fixed investment. Despite these difficulties, the South Korean economy has recovered after a short period of time and the crises ended in 2001 (Borensztein and Lee, 2002; Khayyat et al., 2016; Oh et al., 2012).

The growth process of countries does not follow a homogeneous movement, and this heterogeneity in growth is evident when comparing the economic growth rate among the developed countries. The period between 1913 and 1950 has witnessed exceptional events such as the two world wars and the prolonged depression, in which, the growth heterogeneity may be attributed to (Kolluri et al., 2000).

It is argued that latecomer countries may witness a rapid growth during their modernizing stage, as they have the opportunity to sponge technological advance from the early comers. Accordingly, countries such as West Germany, Italy,
and Japan after the World War II have enjoyed relatively a high economic growth rate. Latecomer countries may overcome some of the economic development stages that early comer countries had to go through (Sofroniou, 2017).

Sluggish increase in the annual growth rate may have a noticeable impact on a country’s economy due to the power of compound interests. For example, the UK’s GDP has been affected and adjusted by the 1.97% annual average inflation increase during the period of 1830–2008. A 0.8% annual growth rate in China between 2000 and 2010 doubled its GDP within 10 years (Judson and Orphanides, 1999). Thus, even small differences in the rate of economic growth among countries will result in differences in a nation’s standards of living.

The aim of the current study is to investigate whether physical and human capital accumulations act as two main drivers of economic growth, measured per capita GDP. To do so, a panel data of 17 Asia-Pacific countries are studied, and the countries are Australia, Brunei, Cambodia, Hong Kong, India, Indonesia, Japan, Malaysia, Mongolia, Myanmar, Nepal, New Zealand, Philippines, Republic of China, South Korea, Thailand, and Vietnam. Other factors such as Research and Development activities, macroeconomic environment, trade openness, and well-developed financial markets will be included in this research to study their effects on raising the living standards in the group of countries under the study.

The rapid economic growth of the East Asian countries served as a role model for other countries. They became the center of focus for empirical growth studies. For example, a strand of literature has studied and identified the determinant of economic growth and attributed the East Asian miracle to the export-oriented industrialization policy (Amsden, 1991; Ariff and Hill, 2010; Gereffi and Wyman, 2014; Kaplanly and Morris, 2008; Sawyer et al., 2010; Stubbs, 1999). Another strand of studies has focused on the effects of human capital in the form of education on economic growth (Chen, 1997; Cohen and Soto, 2007; Collins et al., 1996; Kim and Lau, 1994; Krugman, 1994; Yan and Yudong, 2003).

Previous studies have proved that human capital accumulation is the main source of economic growth. Economists such as Theodore Schultz advocated that investment in education to promote human capital is the major source of total factor productivity (TFP) (Schultz, 1961b). Human capital accumulation has been the center of focus among scholars since the evolution of the growth theory in the 1950s (Barro, 2013; Hanushek et al., 2008; Machlup, 1970; Schultz, 1961a). The education sector in East Asia has experienced a noticeable development during the past two decades. Visible signs of rapid education development in East Asia are universal primary education and rapid increase in secondary and tertiary school enrolment rates (Pernani, 2009).

The remainder of this paper is organized as follows. Section 2 reviews the relevant literature and Section 3 presents data sources and model specification. Section 4 provides the estimation result by correlation matrix and fixed and random effect parameter estimation. Finally, Section 5 concludes this study and discusses its limitations and recommendation for future works.

2. PREVIOUS LITERATURE

In economic growth literature, the focus was mainly on identifying the most effective factor of production that maintains the sustainability of growth in the long run. Earlier growth models considered the investment saving as a critical enhancement factor of the growth (De Melo and Robinson, 2015; Hochstein, 2017; Li, 2017).

During 1960–1970s, when the neoclassical model was in vogue, the technological change was considered as the main determinant of long-term growth as mobility of capital and technology across countries may lead to diminishing return. Thus, there will be a process of growth convergence between developed and developing economies over time.

The new growth theories of Solow (1970), Romer (1986), and Lucas (1988) emphasized on the importance of capital investment derives from increasing returns to capital. Furthermore, knowledge was considered as the most important form of capital, and thus, human capital was regarded as an important factor enhancement of economic growth. The new growth theories also emphasized on the divergence of growth between developed and developing economies over time, as capital accumulation is faster in developed nations and subjected to increasing returns to scale.

The effect of investment, human capital accumulation, trade openness, and inflation was among the most important factors of economic growth that has been studied in the literature. A strand of literature emphasized that trade openness promotes the growth (Kahnamou, 2013; Marelli and Signorelli, 2011; Wacziarg and Welch, 2008). While some other literature have reached an opposite conclusion (Findlay, 1984; Harrison, 1996; Vernon, 1966). The findings on trade
liberalization are still in progress, and research and empirical findings have not yet been conclusive (Peasah and John, 2017).

In an attempt to identify sources of labor productivity in the TFP growth, Bosworth and Collins (2003) in their empirical study used international country-level panel data, and variables such as openness, geographical factors, institutional quality, and policy variables were used as determinant factors of TFP. The result indicated that catch-up effect, openness, geographical factors, and institutional quality have positive contributions to the TFP growth components.

Rioja and Valev (2004) studied the impact of financial development on the economic growth, in doing so, a GMM dynamic panel methodology is applied on a panel data sample consisting of 74 countries, and they found that financial development is one of the main sources of productivity growth in developed countries. While for the less developed ones, the impact of the financial development in the form of capital accumulation will affect the growth. Other recent empirical studies suggested that financial development is a catalyst for economic growth (Ang, 2008; Demetriades and Andrianova, 2004); Levine (2005).

For the East Asian case, the rapid economic growth during the second half of the last century was due to the export-driven growth strategy. As depicted by Kim et al. (2007), the strategy has protected local industries from international competition. Domestic markets were initially protected by imposing trade barriers on international firms to enable the local ones to make enough time to grow up.

The export-driven strategy made governments in these countries to accelerate the catch-up process through redirecting the limited resources to selected promising industries and absorbing technological advances from developed nations. Furthermore, export expansion enhanced the growth in the East Asian countries through promoting productivity growth, by imitating advanced foreign technology, and competing in foreign markets, in addition to the facilitation of factor mobilization and human capital accumulation (Kim et al., 2007).

Perceptions about East Asian growth have changed, as the Japanese economy perished to a long-term depression since the early 1990s, and regional developing countries agonized from the Asian financial crisis of 1997–1998. These turn of economic events have revived the earlier discussions about East Asian economic growth miracle, which had centered around the sources of growth and the role of trade.

In the context of the productivity debate, the capital accumulation advocates argued that rapid growth in East Asia was mainly driven by input factor accumulation, whereas assimilationists believed that the driving force is a high rate of technical change that made possible by the diffusion of technology from the developed countries (Hwang, 1998; Kim et al., 2007; Kim et al., 2009).

The empirical contribution of the current study is that, in the previous empirical studies on economic growth for the Asia-Pacific regions, the focus was on the period from the 1960s to 1990s. The period from the late 1990s onward was rarely covered. This study covers the period of 1994–2011 and tries to examine the factors that play important roles in the rapid growth of Asia-Pacific economies.

In a cross-country setting, an extensive number of theoretical and empirical studies found that the growth is determined by the following factors: Human capital accumulation, income distribution, fertility rate, government expenditure, trade openness, the rule of law, political stability, inflation, and the terms of trade (De Gregorio et al., 2004; Lee and Hong, 2012; Loayza and Fajnzylber, 2005; López-Villavicencio and Mignon, 2011; Qiao, 2007; Yusuf, 2003). All of these studies confirm the so-called conditional convergence of different countries. While many other studies focused on specific economies with specific determinants in the past, this study expands the boundaries of economic enhanced factors to examine and treat a number of determinants that are expected to affect the economic growth. The estimated results of this study are expected to identify the main factors that drive the economic growth in Asia and Pacific economies.

2.1. Data Sources

This empirical study utilizes key indicators for Asia and the Pacific 2012 of the Asian Development Bank annual data sources for the period of 1994–2011, to obtain various macroeconomic variables of selected Asia-Pacific economies. A total of 17 economies were selected such as Australia, Brunei, Cambodia, Hong Kong, India, Indonesia, Japan, Malaysia, Mongolia, Myanmar, Nepal, New Zealand, Philippines, Republic of China, South Korea, Thailand, and Vietnam.

Table 1 presents the definition and explanation of each variable and indicates a number of observation, mean, standard deviation, and minimum and maximum level.

2.2. Model Specification

The current study incorporates the economic variables identified as important factors to growth, drawing heavily on
The model estimated in this study is formulated as follows:

\[
g_{it} = \beta_0 + \beta_1 \text{TOT POP}_{it} + \beta_2 \text{IND GNI}_{it} + \beta_3 \text{GOV EXPT}_{it} + \beta_4 \text{INT RATE}_{it} + \beta_5 \text{GFCF}_{it} + \beta_6 \text{TAX RATE}_{it} + \beta_7 \text{OPENNESS}_{it} + \beta_8 \text{EDU}_{it} + \beta_9 \text{HEALTH}_{it} + \epsilon_{it}
\]  

(1)

Where \( \epsilon_{it} \) denotes the error term, and the subscripts \( i, t \) = 1,\ldots, \( N \) and \( i, t \) = 1,\ldots, \( T \), denote an economy \( i \) at the time period \( t \), respectively. \( g_{it} \) is the growth rate in the real GDP per capita in country \( i \) at time \( t \), and \( \beta_i \) captures the effect on \( g_{it} \) of a change in independent variables, holding all the other explanatory variables fixed.

Nine explanatory variables are taken into consideration for the significant effect on the economic growth. The first one is total population, given by \( \text{TOT POP} \). \( \text{IND GNI} \) denotes industry share of GNI, while \( \text{GOV EXPT} \) stands for government expenditure. Interest rate given by \( \text{INT RATE} \) is expected to have negative impact on growth. \( \text{GFCF} \) is the gross fixed capital formation which is measured by the ratio of exports and imports to GDP.

For tax rate, taxation has a negative relationship with growth. \( \text{OPENNESS} \) is the index of international trade openness, measured by the ratio of exports and imports to GDP. \( \text{EDU} \) and \( \text{HEALTH} \) denote spending on education and health, respectively.

The model specification in equation (1) can be modified as follows:

\[
\Delta g_{it} = \beta_0 + \beta_1 \Delta \text{TOT POP}_{it} + \beta_2 \Delta \text{IND GNI}_{it} + \beta_3 \Delta \text{GOV EXPT}_{it} + \beta_4 \Delta \text{INT RATE}_{it} + \beta_5 \Delta \text{GFCF}_{it} + \beta_6 \Delta \text{TAX RATE}_{it} + \beta_7 \Delta \text{OPENNESS}_{it} + \beta_8 \Delta \text{EDU}_{it} + \beta_9 \Delta \text{HEALTH}_{it} + \epsilon_{it}
\]
Where $\Delta$ is the first-differenced operator. The variables in logarithm form are $\text{TOT POP}, \text{GOV EXPT}, \text{GFCF}, \text{OPENNESS}, \text{EDU}$, and $\text{HEALTH}$. The variables of $\text{IND GNI}, \text{INT RATE}$, and $\text{TAX RATE}$ are not in logarithm form since they are in percentages which imply the change without any modification.

The theoretical expectation is that the results will get negative and significant on the impacts of population, interest rate, and tax rate, while all the other variables are expected to be positive and significant on the growth of per capita GDP. In other words, it is expected that $\beta_1, \beta_4$, and $\beta_6 < 0$ and $\beta_2, \beta_5, \beta_7, \beta_9$, and $\beta_8 > 0$.

For the panel estimation technique, this study applied fixed and random effects to estimate equation (2). Hausman test (Hausman and Taylor, 1981) based on the difference between fixed and random effects estimators is also conducted. The test showed that the fixed effect is asymptotically better estimation method.

### 3. ESTIMATION RESULTS

A correlational analysis is conducted as a preliminary check for the relationships among the variables used in the statistical analysis. Table 2 shows the correlation matrix between independent variables and the dependent variable growth of per capita GDP.

According to Table 2, most of the signs of the correlations are the same as expected. The correlation between total population and per capita GDP is positive and relatively low, while the correlation between industry share of GNI and per capita GDP is negative and low. The correlation between government consumption and per capita GDP is also negative. On the other hand, per capita GDP is negatively correlated with gross fixed capital formation while positively correlated with trade openness.

Furthermore, the correlation between interest rate and per capita GDP is negative and high (its correlation coefficient is equal to −0.4466), and the correlation between tax rate and per capita GDP is also negative. With respect to human capital variables, both the expenditure on education and health are positively correlated with per capita GDP with a high level of correlation coefficient of 0.5794 and 0.5166, respectively.

Table 2 also shows that there are low interactions within the independent variables. All the correlation coefficients are <0.5 except the correlation between government consumption and gross fixed capital formation (which is =0.9650) and the correlation between the expenditure on education and the expenditure on health (0.9799).

Estimates of the fixed effects and random effects parameters are presented in Table 3 where the dependent variable is the growth of per capita GDP. The value of $R^2$ suggests that the independent variables explain about 85% of the variations within the same countries in the dependent variable. From the fixed effect panel estimation results (Table 3), the findings are presented in Table 3.

With respect to total population, the sign of the coefficient of $\ln_{\text{totpop}}$ is estimated to be positive and consistent with the theoretical prediction. About 56% of the world’s total population is in Asia and the Pacific region (about 3.9 billion people). The most populated countries in the region are China and India that account for about 66% of the region’s total population.

A rapid growth in populations of most Southeast Asian economies was during 1990–2011, particularly in Brunei, Cambodia, Malaysia, and the Philippines, where the average annual population growth exceeded by 2%. Singapore, a highly urbanized economy, posted an average annual growth of 2.7%. From 1990 to 2011, the populations of Brunei D, Cambodia, Malaysia, and Singapore increased by more than 60% (Lee et al., 2012).

An increase in the size of population will result in increase in growth by raising the supply of labor, which derives “scale effect.” The increase in total population may stimulate the economic growth in Asia and Pacific economies by promoting labor force in employment or technology improvement (Lee et al., 2012).

For industry share of GNI, although the coefficient of $\ln_{\text{indgni}}$ has a low level of significance, it is positive and consistent with the theoretical prediction. This supports the theoretical expectation that industrialization process is enhancing social efficiency, which may have positive effects on economic growth in the long run.

For government expenditure, the coefficient on $\ln_{\text{goexp}}$ is significant and with the expected sign. On the other hand, the Asia-Pacific economies take gross fixed capital formation as an essential substance of economic growth. This argument is supported by the coefficient of $\ln_{\text{kform}}$
The impact of market size is more valid for smaller economies that try to enlarge the market by a higher proportion when opening up to trade. Trade liberalization will have an additional effect on economic growth; it tends to stimulate product market competition which will result in enhancing domestic productivity. This is because it forces the most unproductive firms exit from the local market and it forces local firms to gain innovation capabilities to overcome competition with their new foreign counterparts (Aghion and Durlauf, 2009).

The sign of interest rate is consistently negative supporting the theoretical prediction arguing that low-interest rates can help increase the effects of learning-by-doing externalities on economic growth, this is due to the fact that trade openness lead to increase in the production scale and increases the market size appropriated by successful innovation.

Table 3: Fixed and random effects parameter estimates

<table>
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<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>SE</th>
<th>Variable</th>
<th>Coefficient</th>
<th>SE</th>
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<td>0.4520</td>
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<td>−0.0891</td>
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<td>0.2038</td>
<td>ln_kform</td>
<td>−0.3158</td>
<td>−0.0940</td>
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<td>ln_trade openness</td>
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<td>0.1574</td>
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<td>0.1504</td>
<td>Interest rate</td>
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<td>−0.2144</td>
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<td>0.0592</td>
<td>Tax rate</td>
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<td>−0.1594</td>
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<tr>
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<td>0.5166</td>
<td>−0.1640</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Statistically significant at <1% (a), 1–5% (b), 6–10% (c) levels of significance.

Table 2: Correlation matrix

<table>
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<tr>
<th></th>
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<th>ln_totpop</th>
<th>indgni</th>
<th>ln_govcon</th>
<th>ln_kform</th>
<th>ln_trade openness</th>
<th>Interest rate</th>
<th>Tax rate</th>
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<th>ln_health</th>
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</tr>
<tr>
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<td>1.0000</td>
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<tr>
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<td>−0.0891</td>
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<tr>
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<td>−0.2344</td>
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</table>
the economy to recover and achieve positive growth. The negative sign of the tax rate coefficient indicates the inverse relationship between the tax rate and economic growth, the higher the tax rate imposed by the government, and the lower the economic growth the country will have.

For the expenditure on education and health, both of the coefficients of \( \ln_{edu} \) and \( \ln_{health} \) are consistently positive supporting the theoretical expectation that human capital has positive effect on growth.

4. CONCLUSION

The economic well-being of the East Asia countries attracted a wide range of scholars to conduct empirical studies investigating the determinant of the growth. This study widens the boundaries of economies to examine and treat a number of determinants that are expected to affect the economic growth.

Through this study, key determinants of per capita GDP growth are investigated in a panel data consisting of 17 Asia-Pacific economies; Australia, Brunei, Cambodia, Hong Kong, India, Indonesia, Japan, Malaysia, Mongolia, Myanmar, Nepal, New Zealand, Philippines, Republic of China, South Korea, Thailand, and Vietnam for the period of 1994–2011. Panel regressions analysis reveals that the factors mentioned above along with the industry share of GNI, government consumption, gross fixed capital formation, trade openness, interest rate, tax rate, and expenditure on the education and health are significant determinants of growth.

The main findings from the study were obtained from the analysis of correlation and regression. From the correlation analysis, the signs of correlation coefficient were positive in independent variables of total population, trade openness, expenditure on education, and health when per capita GDP is the dependent variable. On the other hand, the signs of correlation coefficients were negative in independent variables of industry share of GNI, government expenditure, gross fixed capital formation, interest rate, and tax rate.

From the analysis of regression, all the variables were in line with theoretical expectation. Total population, industry share of GNI, government consumption, gross fixed capital formation, trade openness, and expenditure on education and health are consistently significant, and the signs of regression coefficients are positive. On the other hand, interest rate and tax rate are also consistently significant and negatively related to the growth of per capita GDP.

Since this study used per capita GDP as the dependent variable of economic growth, further studies may extend the range of output to TFP to supplement the limitation of this study. Although human capital is expected to be the main driver of economic growth, the result from the correlation analysis presented that there is a high correlation between expenditure on education and health. To show the impact of human capital on economic growth in Asia-Pacific regions, estimation with years of schooling may enhance the study instead of using expenditure on education and health.

REFERENCES


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- Discussion
- Conclusion

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- Materials and Methods
- Results
- Discussion

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